**Client Software User Manual**

GEN IV TECHNOLOGY

# H.264 Network Digital Video Recorder

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## VERSION DESCRIPTION

This manual is intended for use with DVR Client Software 1.4 and DVR firmware version 1.4. New features included in this release are:

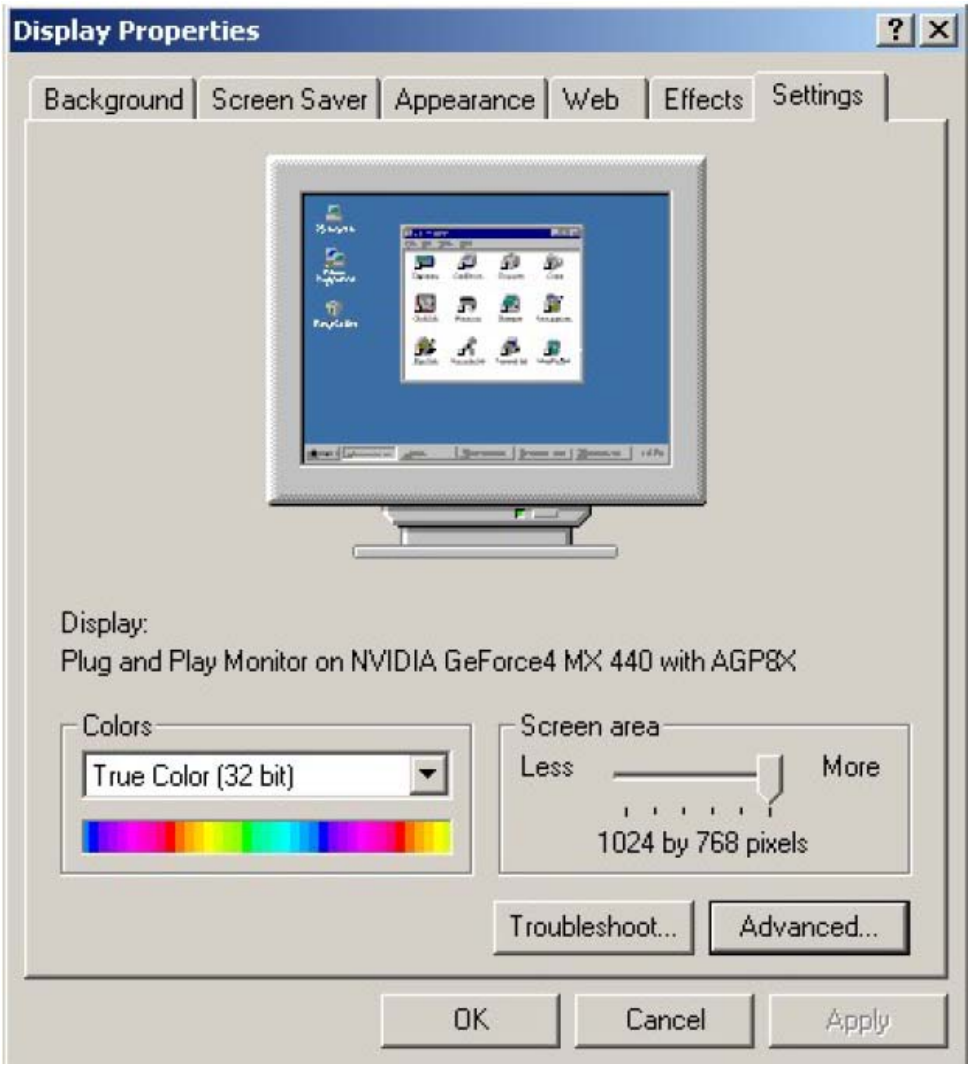
- Remote Setup via Internet Explorer
- Dual Stream Support – Main Stream and Sub Stream
- 4 Private Masking Areas per Channel
- 128 Preset Support for PTZ Cameras

In order to achieve maximum video performance and quality, please ensure a quality video graphics card is installed in the PC prior to installation. Lower specification display adapters may not display the video properly or at all. Display adapters that have been tested include, but are not limited to:

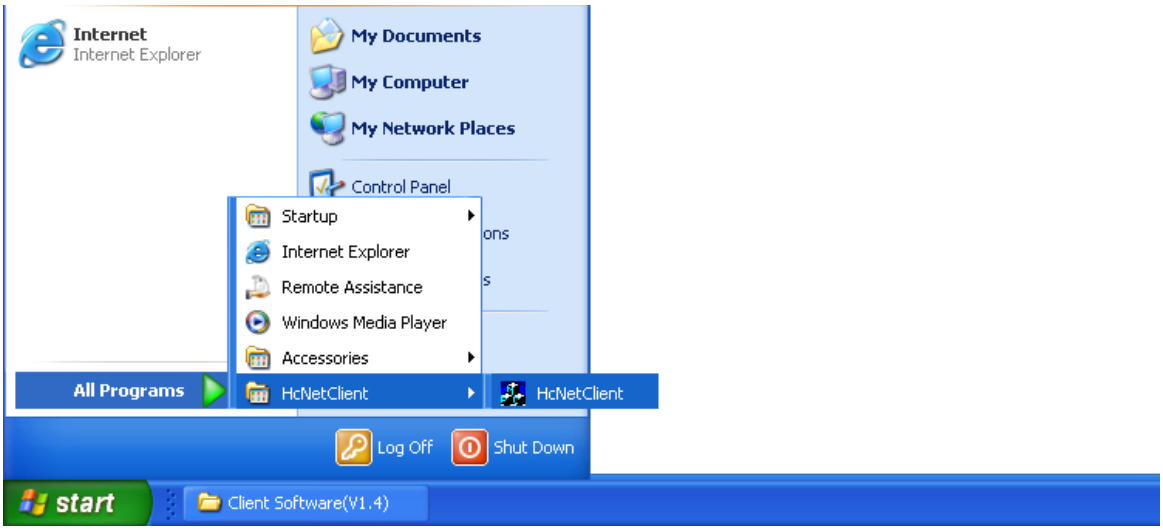
- ATI Rage 128 Pro 16MB
- Radeon 7000 and above
- nVidia TNT2 M64 32MB
- nVidia TNT2 Pro
- nVideo GeForce2 MX Series

-Windows 2003 operating systems require the Hardware Acceleration feature set to FULL under Advanced Display Properties and DirectX's DirectDraw Acceleration and Direct3D Acceleration to be enabled within the DirectX Diagnostic Tool.

-Please ensure the display settings for your monitor are set to 1024 x 768. This will ensure the application will fit your screen area.



Double-click the client software setup file named “HcNetClientSetup(V1.4).exe”. The software will automatically install and you can find the software named “HcNetClient” in your Programs list.



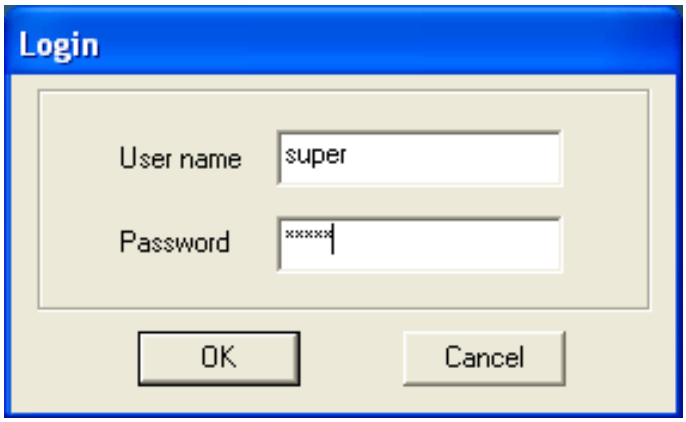
Please complete the initial setup of the DVR prior to accessing the client program. The DVR's network settings must be correct in order for the client software to communicate.

**NOTE**: Network setup tutorials are available in Appendix A

1. Run the HcNetClient.exe application

2. At the login prompt, enter the username and password

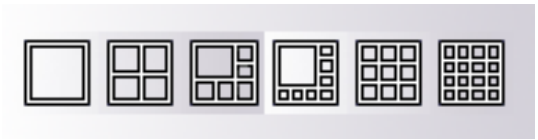
    - Default username: super
    - Default password: super



The main interface is divided into 5 main sections. For detailed information on some of these functions, please see the corresponding section.

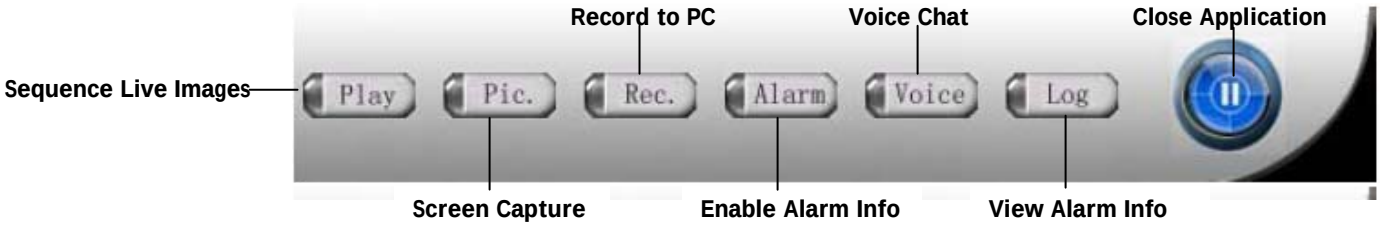
1. Preview Window

2. Preview Window Number Selection

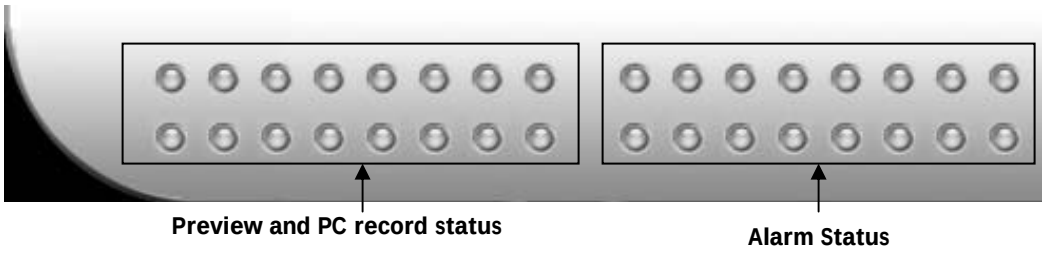


3. Function Icons

4. Function Icons




5. Status Lamps




- Preview and PC Record Status: Each lamp represents one channel

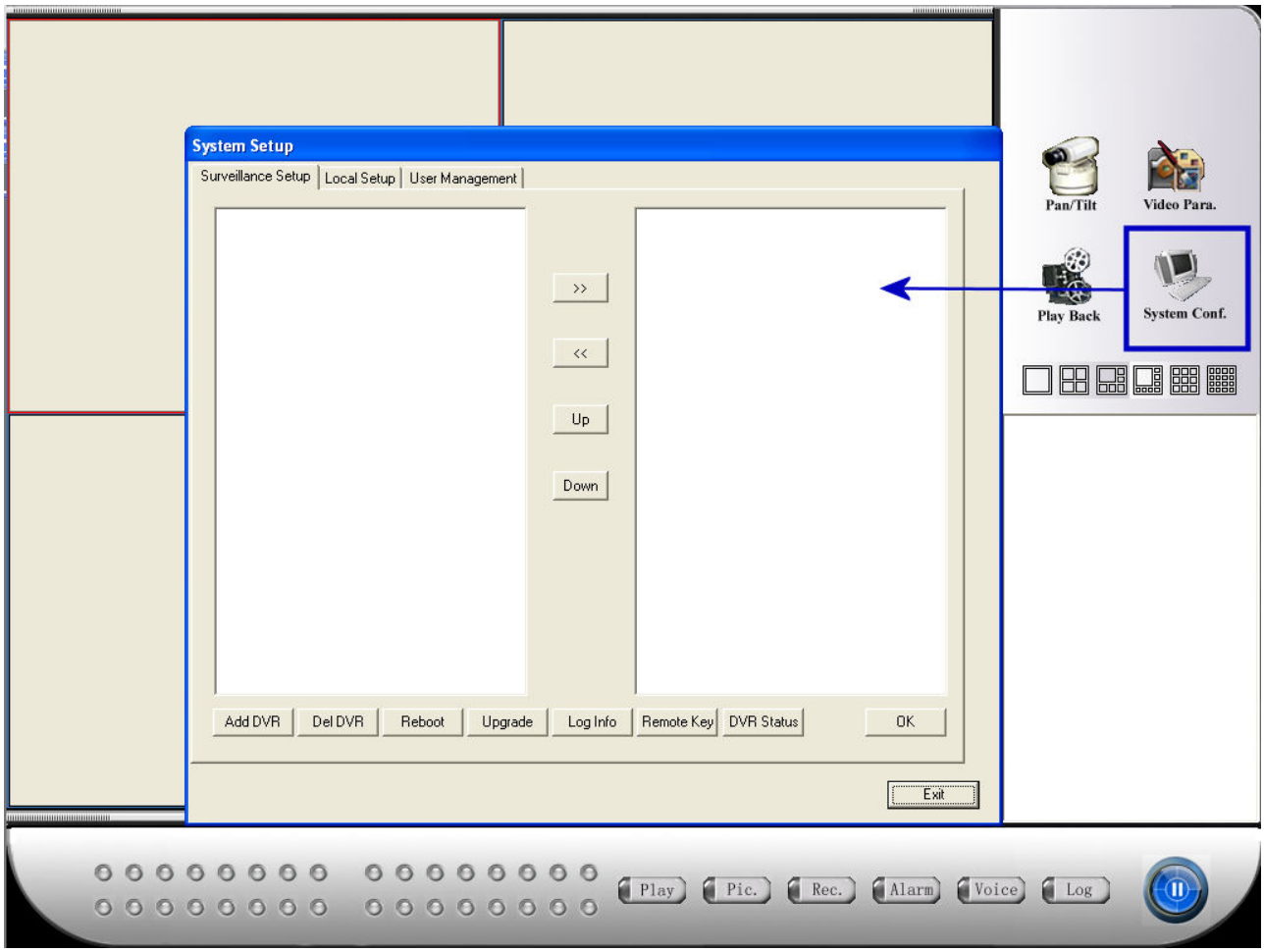
  - Preview only, not recording to PC
  - PC recording active

- Alarm Status: Each lamp represents one DVR

  - Receiving alarms from the DVR is enabled
  - Alarms have been received. Press the Log button to view details.

## Surveillance Setup

-Click the System Conf icon on the main interface to enter system setup



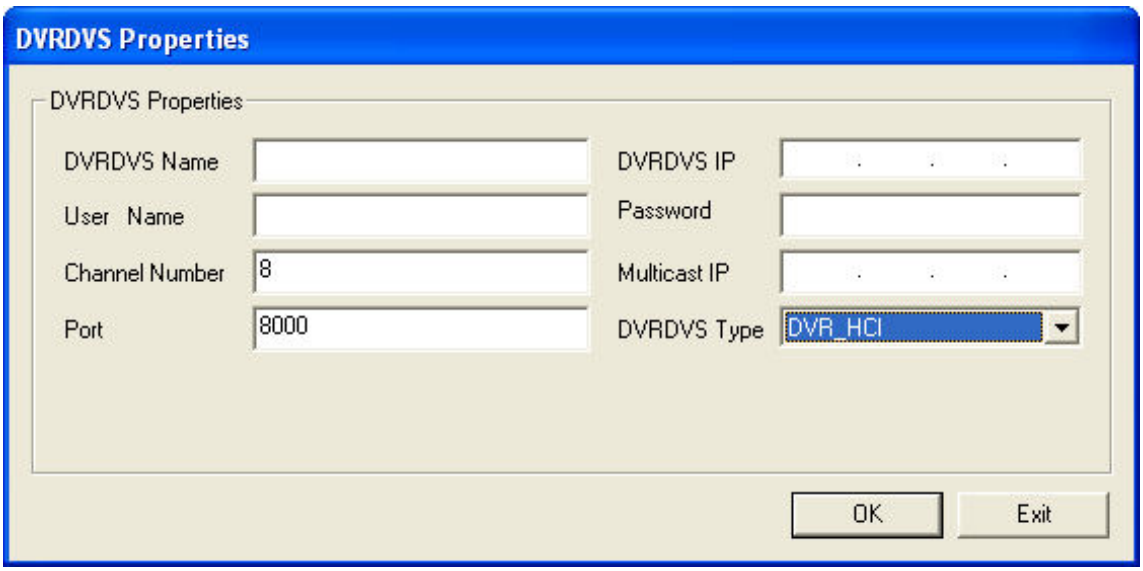

The following functions can be performed from this interface

1. Add/Remove DVRs
2. Set Channel Properties and Enable Sub-streaming
3. Set Preview Sequence
4. Firmware Upgrade
5. Remote Reboot
6. Remotely Control a DVR
7. Obtain DVR Status
8. Log Information
9. Remotely Setup a DVR

## 1. Adding DVRs

**NOTE**: Up to 16 DVRs may be managed via the client software

Click the Add DVR button to view the following dialog.




**DVRDVS Name**: Enter a description of the DVR to add

**DVRDVS IP**: Enter the appropriate IP address to connect to the DVR

**User Name**: Enter the username configured in the DVR [default: admin]

**Password**: Enter the password configured in the DVR [default: 12345]

**Channel Number**: Enter the number of channels the DVR supports

**Multicast IP**: Enter a Class D multicast IP for your network. Omit this option if multicasts are not adopted in your network

**Port**: Enter the Client Port configured in your DVR [default: 8000]

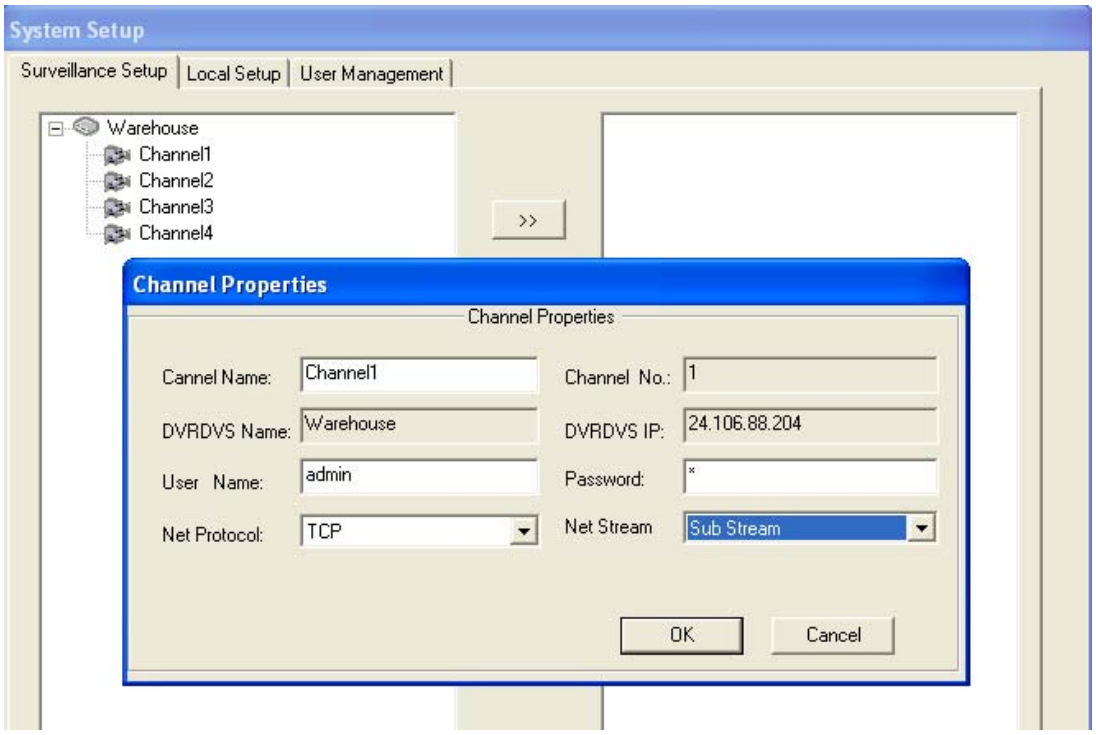
**DVRDVS Type**: Select DVR_HCI model

**NOTE**: After Adding a DVR, you can edit these settings by double-clicking the DVR name.

## 2. Set Channel Properties and Enable Sub-Streaming

**NOTE**: These changes must be made for all channels independently

Double-Click the channel you wish to modify




**Channel Name**: Enter a description

**Channel Number**: Displays the channel you are modifying

**DVRDVS Name**:Displays the DVR you are modifying

**DVRDVS IP**: Displays the DVRs IP address

**User Name**: Enter the username of the DVR [default: admin]

**Password**: Enter the password of the DVR [default: 12345]

**Net Protocol**: Select TCP

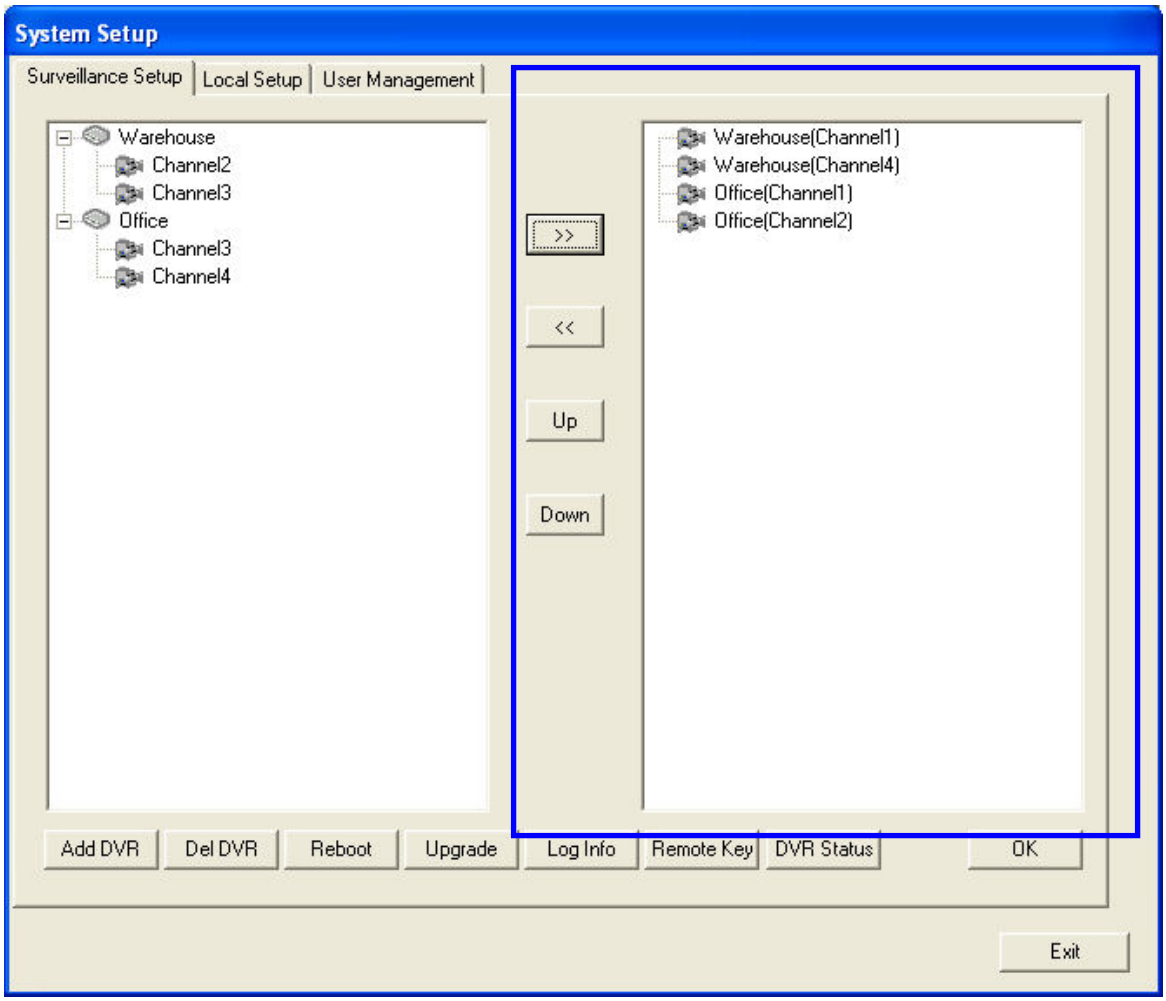
**Net Stream**: Select Sub Stream (this setting enables sub-streaming)

**NOTE**: Sub-streaming is a very important feature. For more information on sub-streaming and setup, please see the Network Optimization Guide included with this manual

### 3. Setting Live Preview Sequence

If live preview sequencing is enabled, you can choose to sequence multiple channels from any DVR that has been added.

**NOTE**: To enable live preview sequencing in the client software, refer to the Local PC Setup section of this manual




-Moving cameras to the right-side box will allow those cameras to be sequenced during live preview. You can also change the order in which the cameras are sequenced.

**NOTE**: To start sequencing during live preview, refer to the Sequence Preview section of this manual

## 4.Firmware Upgrade

To upgrade the firmware of the DVR simply select the DVR you wish to upgrade. Click the Upgrade button and browse to the upgrade file and click Upgrade. The DVR will automatically reboot after the upgrade is complete.

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**NOTE**: Please do not press any buttons or power down the unit during an update

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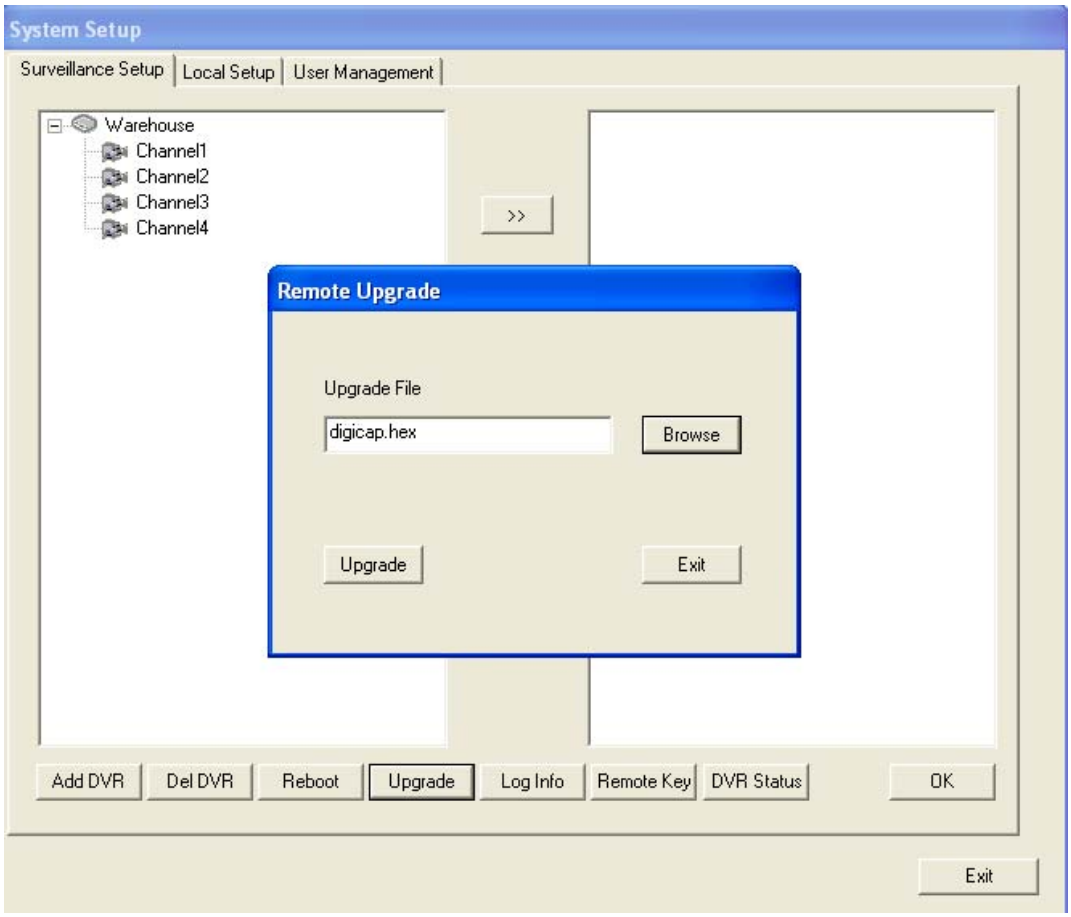
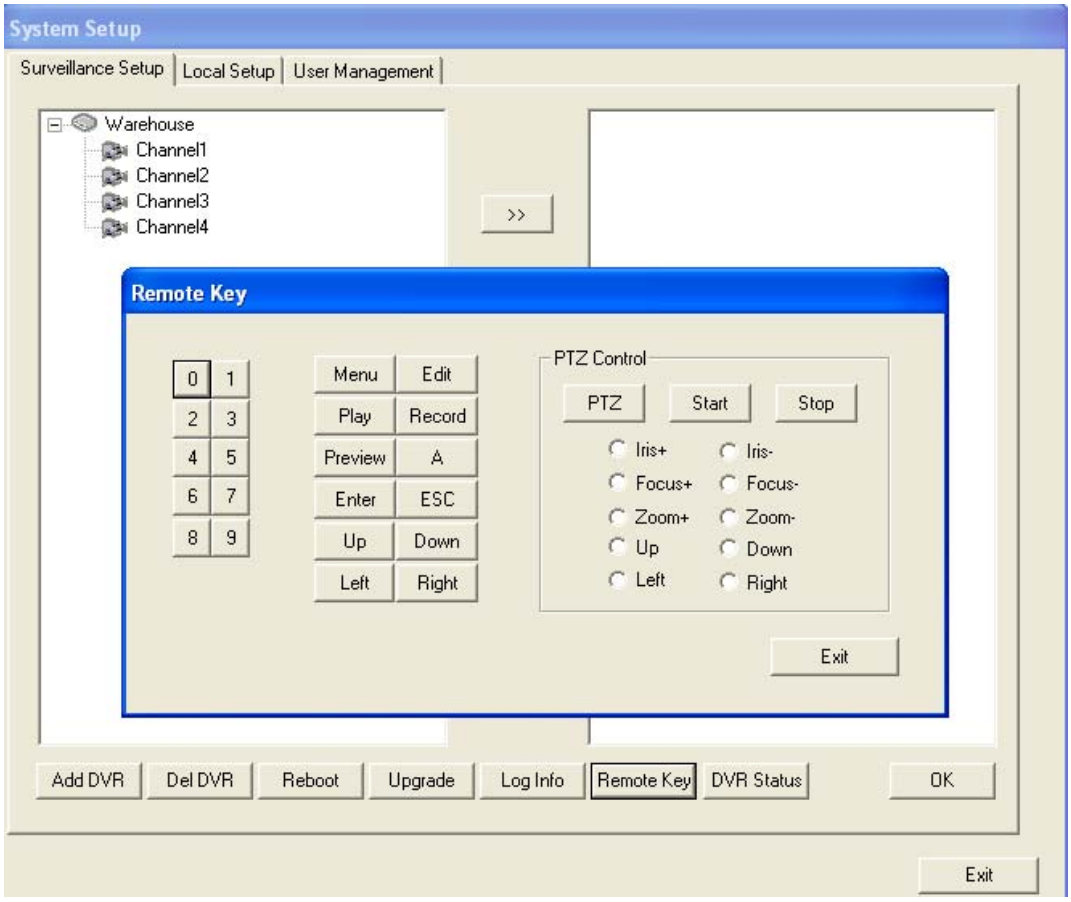


## 5. Remote Reboot

Some settings require a reboot of the DVR to take effect. Simply select the DVR you wish to reboot and click the Reboot button.

## 6. Remotely Control a DVR

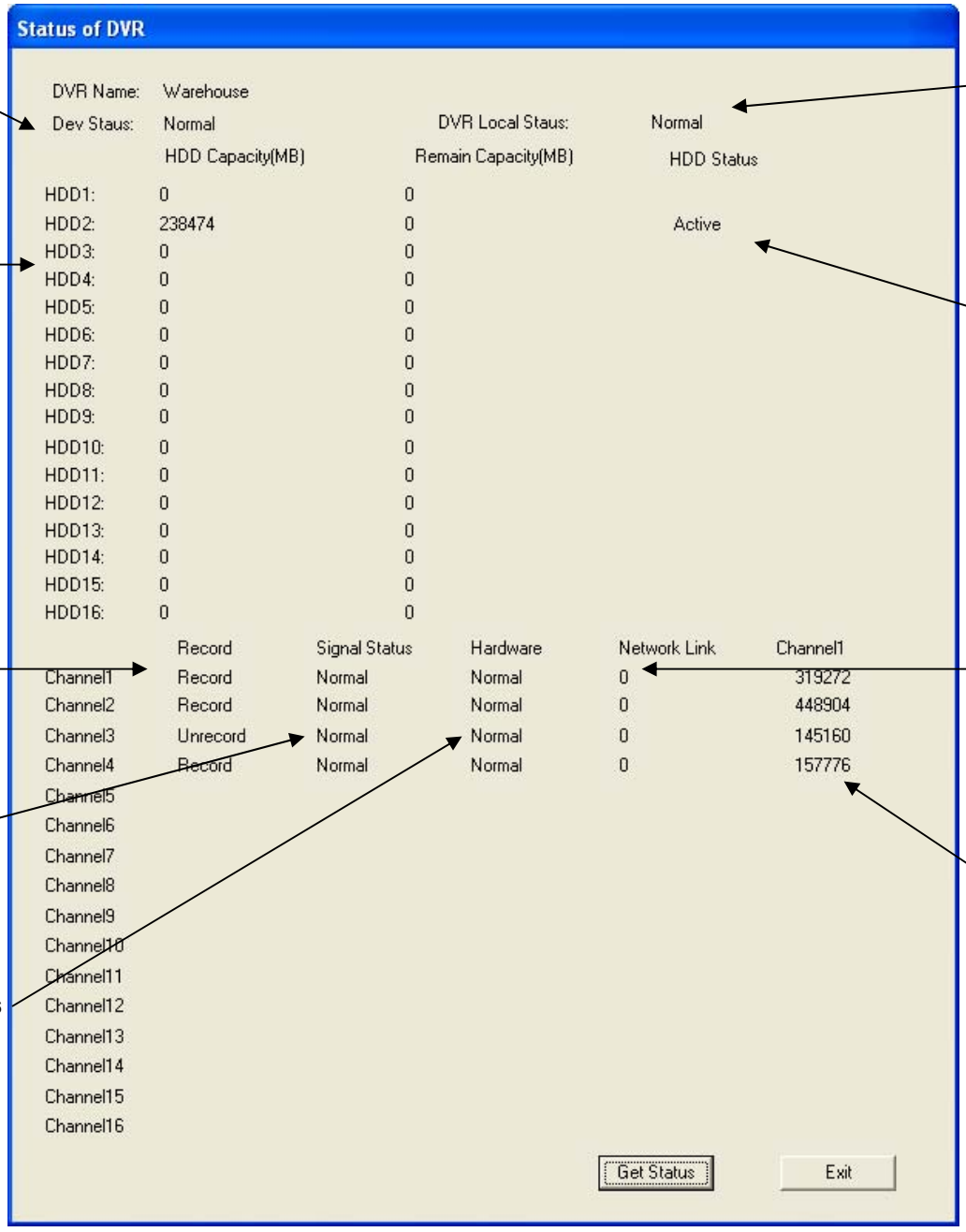
You may send commands to the DVR to remotely control the DVR. These commands are the same found on the front panel of the DVR system. Simply click select the DVR and click the Remote Key button.



## 7.Obtain DVR Status

By selecting a DVR and pressing the DVR Status button you are able to view DVR information including: device status, local PC status, hard drive consumption and status, channel record status, signal loss, hardware status, network connections, and max bit rates. Press the Get Status button to display updated information

**NOTE**: The status info refreshes every 5 seconds. Press the Get Status button to get current information.




**DVR Status**
-Normal
-Abnormal

**HDD Storage**

**Record Status**

-Record
-Unrecord

**Signal Status**

-Normal
-Signal Lost

**Hardware Status**

-Normal
-Abnormal

**PC Status**
-Normal
- Greater than 85% CPU usage
-Hardware error

**HDD Status**
-Active
-Sleep (idle)
-Abnormal

**Network Links**

Active Connections

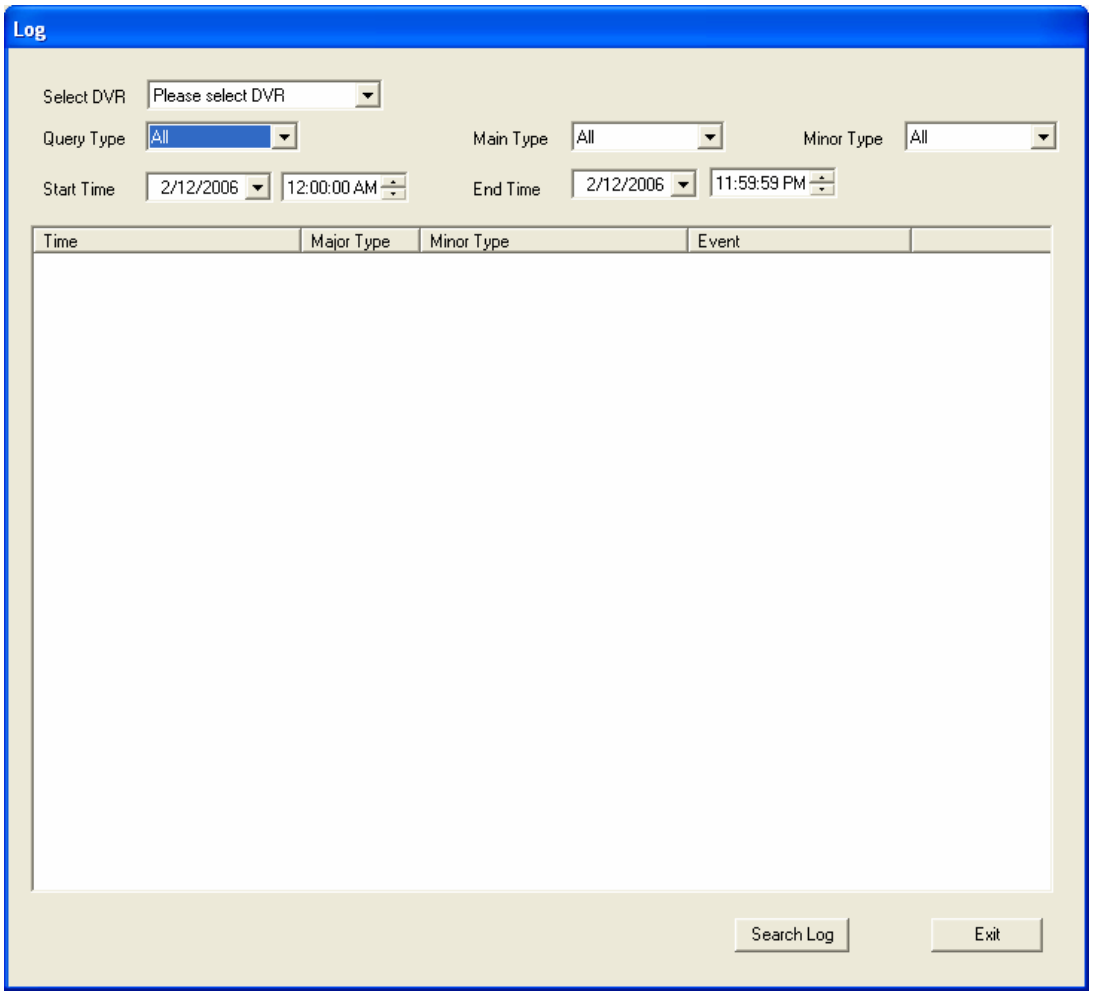
**Bit rate**

Current Max Bit Rate

## 8. Log Information

By selection a DVR and clicking the Log button you are able to view the system's detailed log.

**NOTE**: The log only displays a limited amount of entries. To view additional entries narrow your search by time from the Query Type list.



## 9. Remotely Setup a DVR

To remotely setup a DVR:

a. Add a DVR to the list
b. Select a DVR
c. Right-click and choose Remote Setup

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**NOTE**: View the Remote DVR Setup section for details of this function

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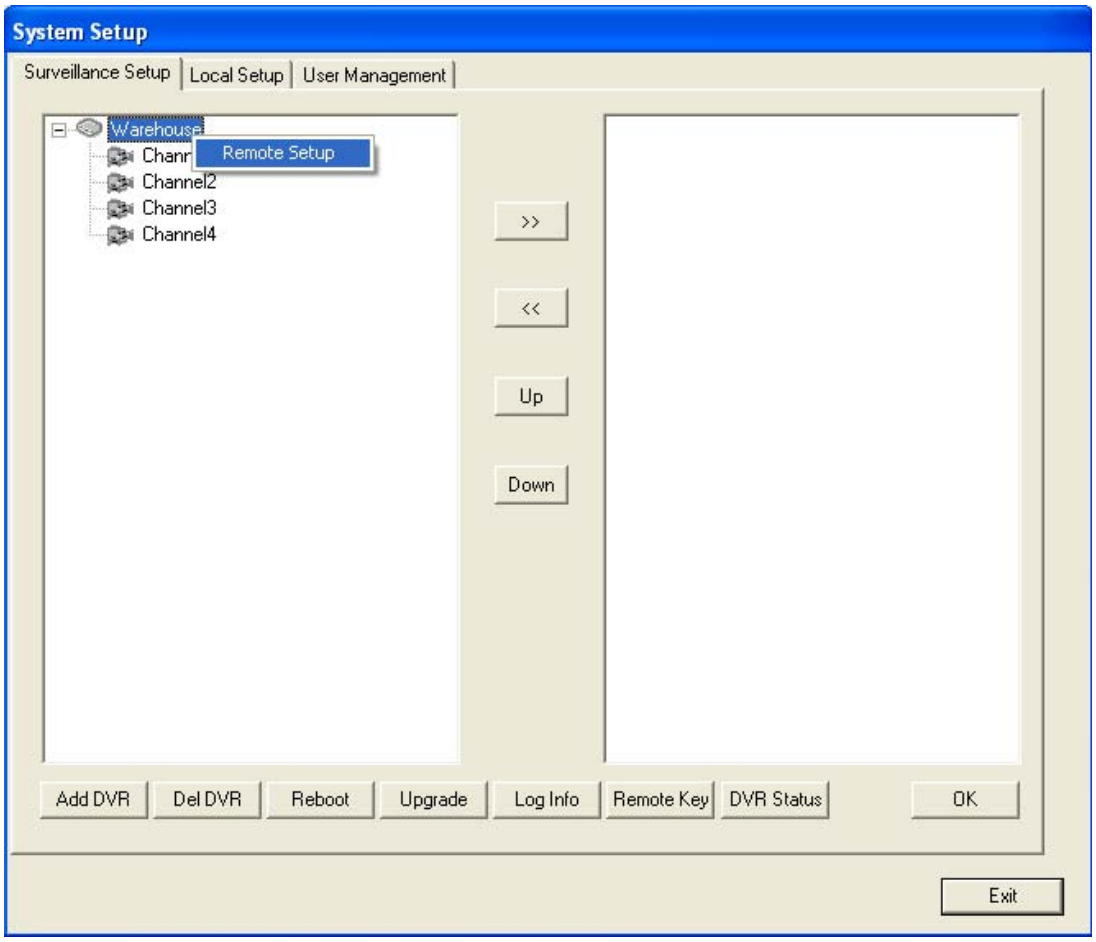
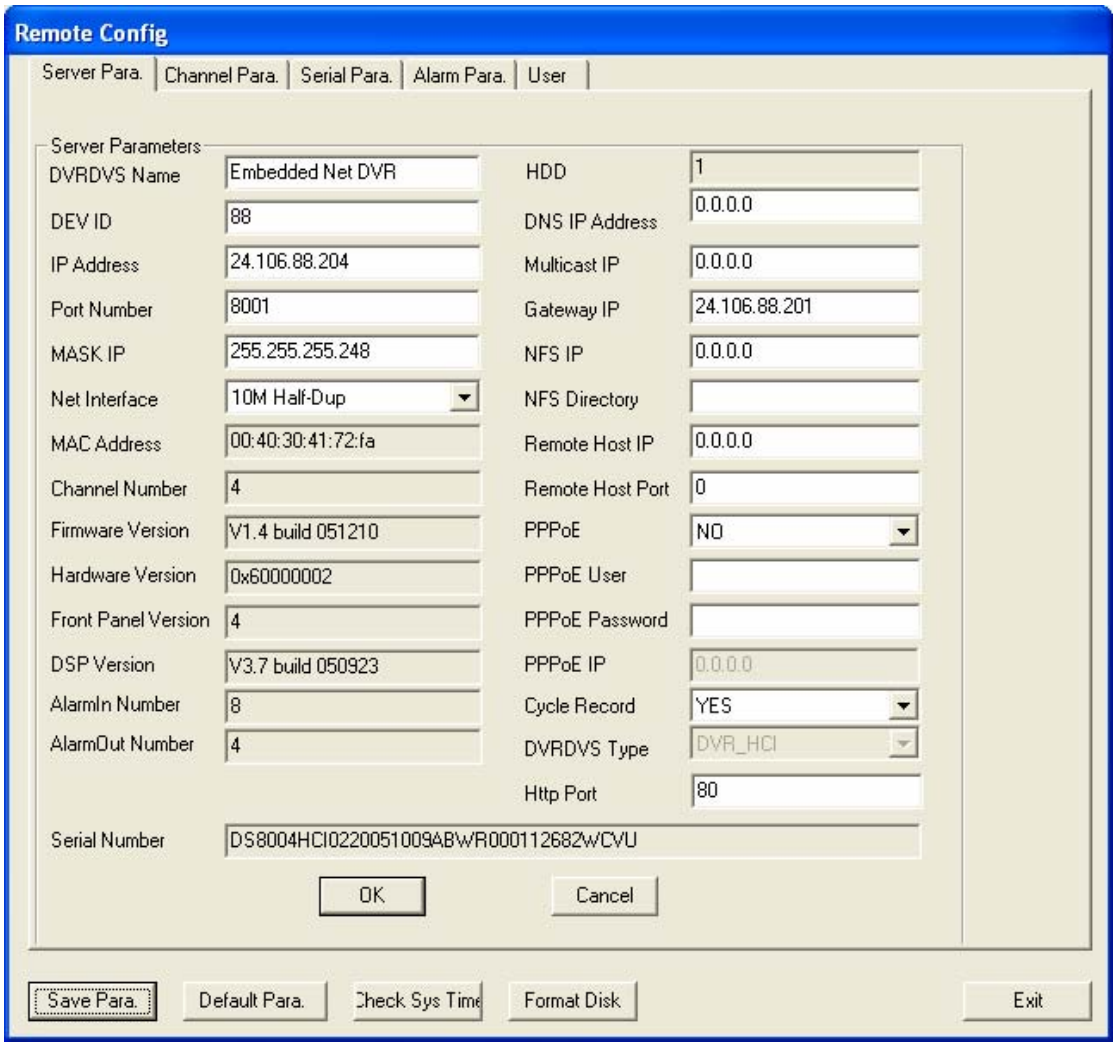


## Remote DVR Setup

-To access the remote setup page, please see page 17.
-If you modify any parameter, click OK prior to moving to another page or channel. Click "Save Para." when all parameters for all channels have been set and the client software will send this information to the DVR. Reboot the DVR for the changes to take effect.

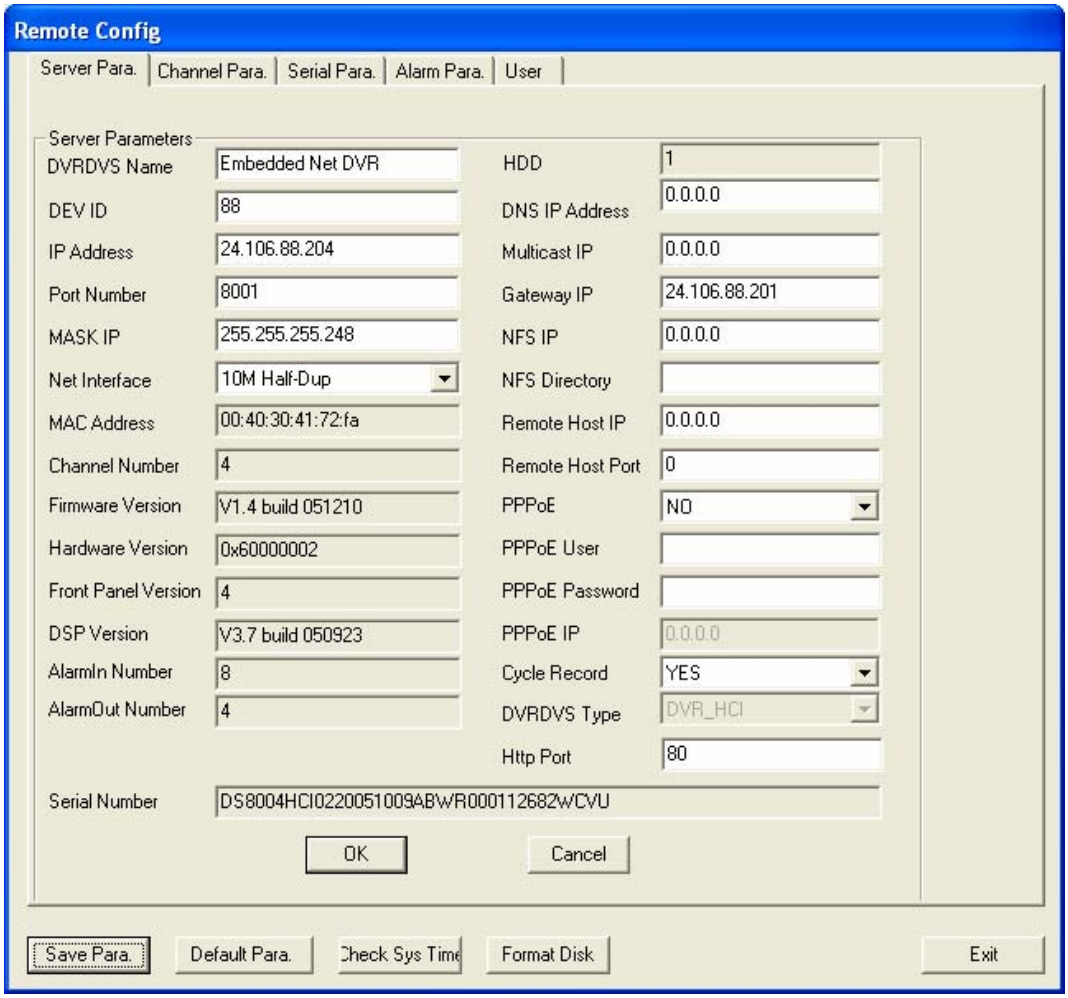



The following functions can be performed from this interface

1. Server Parameters
2. Channel Parameters
3. Serial Parameters
4. Alarm Parameters
5. DVR User Parameters

## 1. Server Parameters

-For detailed information, please review DVR user manual.




**Save Para.**
Sends configuration to DVR

**Default Para.**
Sets DVR to default configuration

**Check Sys Time**
Syncs DVR time with PC

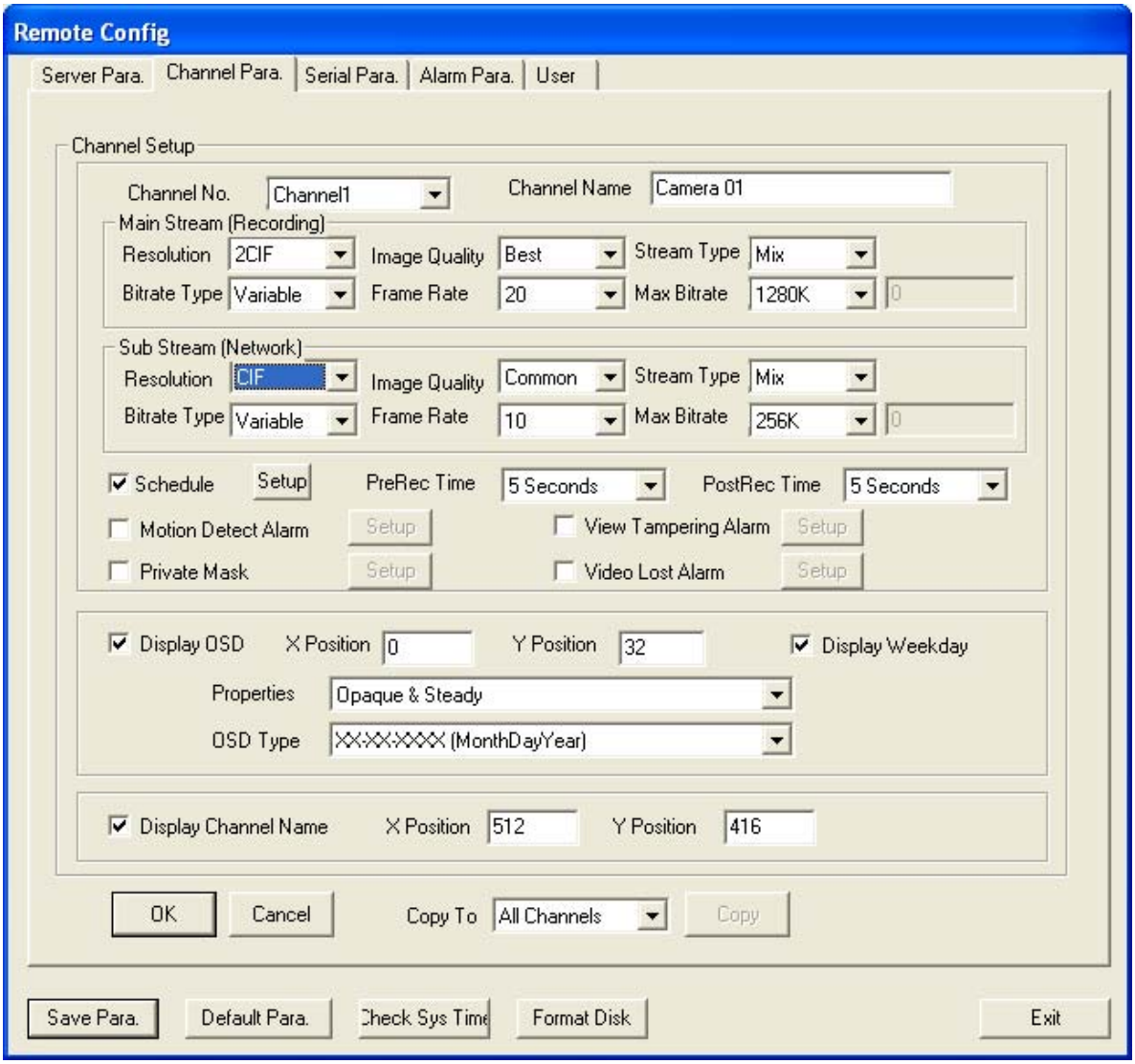
**Format Disk**
Formats and clears all hard drives installed

| | |
|---|---|
| DVRDVR Name: Description of DVR | HDD: Number of hard drives installed |
| DEV ID: Device ID set in the DVR | DNS IP: DDNS IP address if software has been developed for such use |
| IP Address: IP Address of the DVR | Multicast IP: Multicast IP of the DVR |
| Port Number: Client port (> 2000) | Gateway IP: Gateway (router) IP address |
| MASK IP: Subnet Mask | NFS IP: Network File Server IP (future feature) |
| Net Interface: Select network speed/duplex | NFS Directory: Directory on NFS (future feature) |
| MAC address: MAC address of the DVR | Remote Host IP: Central Server IP if software has been developed for such use |
| Channel Number: Number of channels | Remote Host Port: Central Server port if software has been developed for such use |
| Firmware Version: Firmware version | PPPoE: Status of PPPoE setup for DSL modems |
| Hardware Version: Hardware version | PPPoE User: PPPoE username provided by the DSL ISP |
| Front Panel Version: Panel version | PPPoE Password: PPPoE password provided by the DSL ISP |
| DSP Version: DSP version | PPPoE IP: PPPoE IP retrieved from ISP |
| Alarm In: Amount of alarm inputs | Cycle Record: DVR hard drive overwrite option |
| Alarm Out: Amount of alarm outputs | DVRDVS Type: DVR model |
| Serial Number: Serial number | Http Port: Web port used to access embedded web server through IE |

## 2. Channel Parameters

-This section allows users to modify channel parameters, including:

a. Setup Main Stream and Sub Stream recording parameters
b. Set Recording Schedule
c. Set Motion Detection
d. Set Privacy Mask
e. Set View Tampering Alarm
f. Set Video Lost Alarm
g. Set OSD Options and Pre/Post Recordings



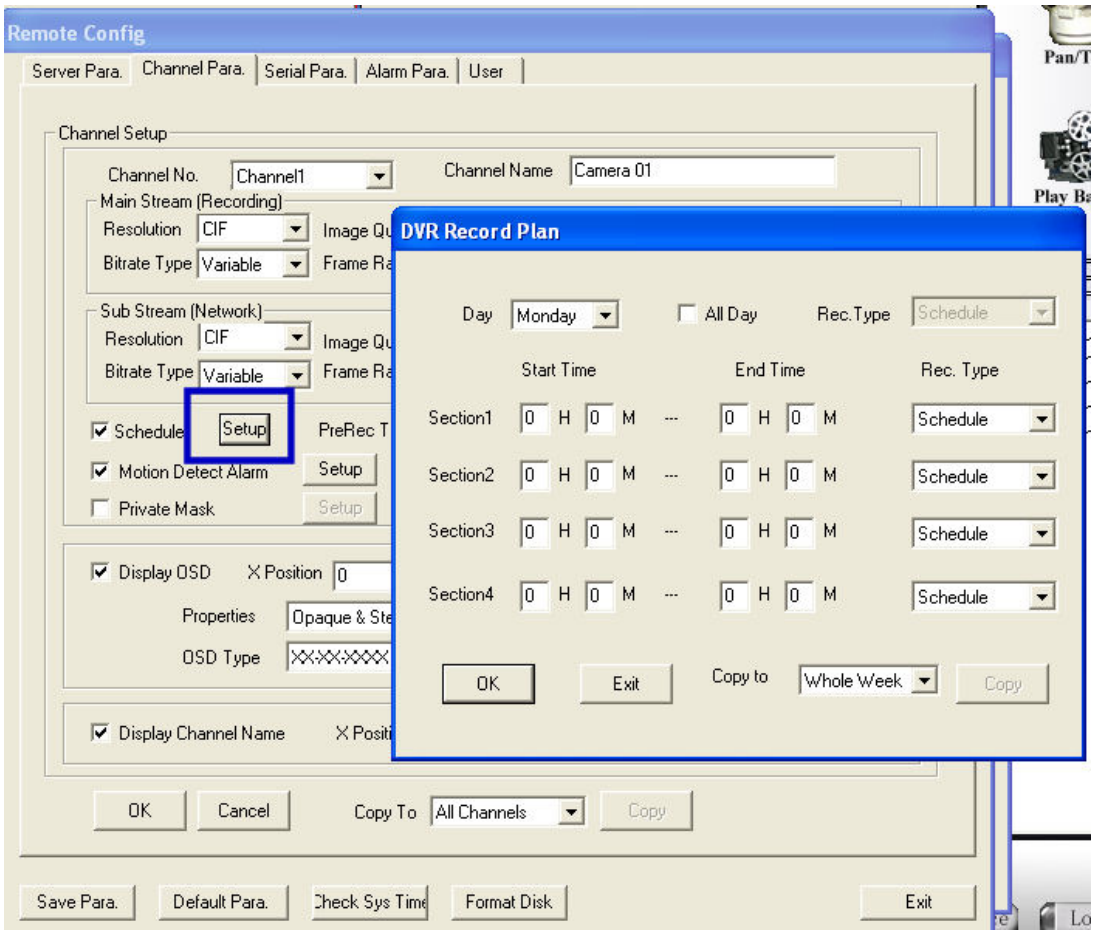

**2-a. Main Stream Recording**: Parameters at which video will be recorded to the DVR's hard drive(s)

**Sub Stream**: Parameters at which video will be displayed when accessing remotely from the web browser or client

**NOTE**: Please review the Network Optimization Guide at the end of this manual for details on configuring the Sub Stream

## 2-b. Set Recording Schedule

-Press the Setup Button next to Schedule to set recording parameters

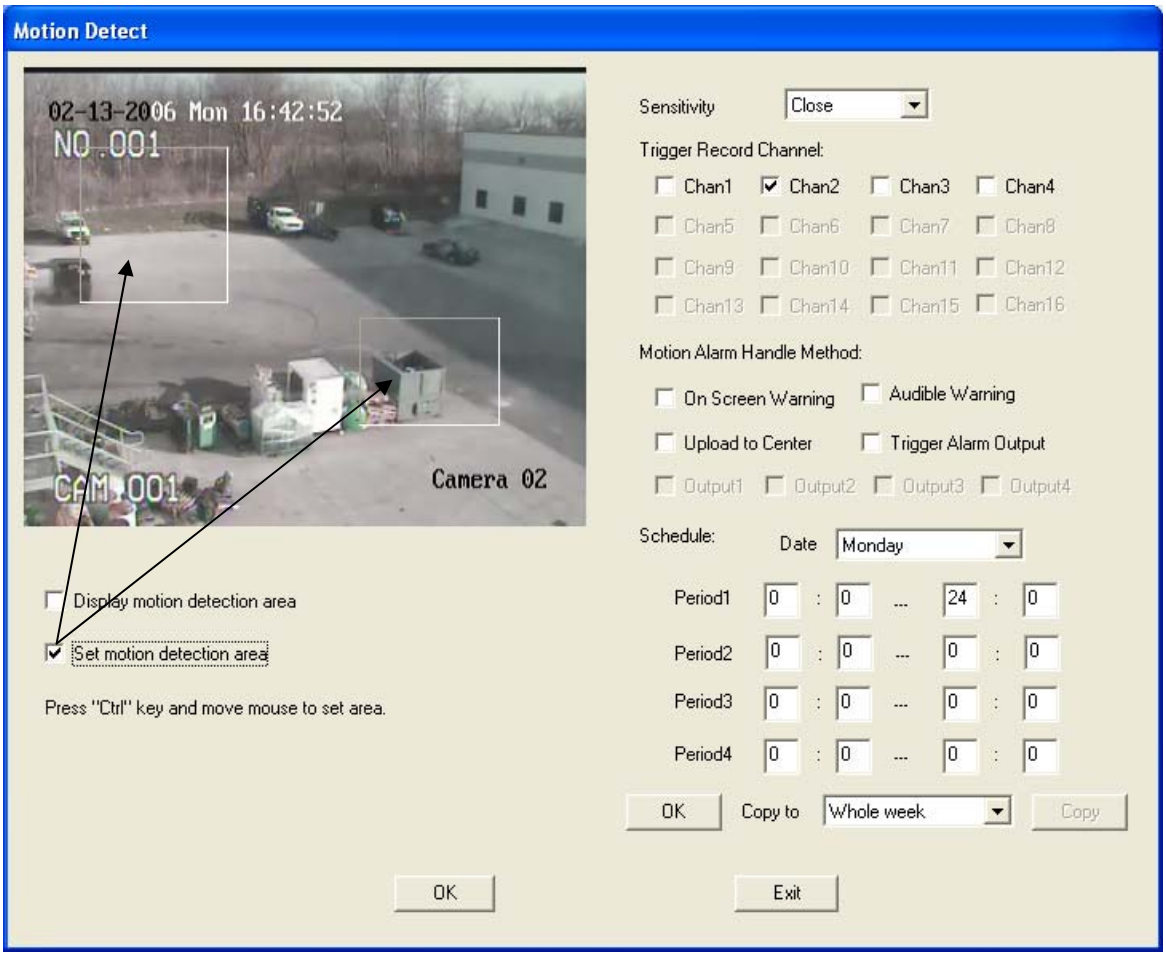



**All Day:** Check this option to use the same recording method throughout the day. Uncheck this option to use different recording methods throughout the day.

**Section1 – Section4:** Specify the time period and recording method this channel should use for the day(s) selected.

### 2-c. Set Motion Detection

-Press the Setup Button next to Motion Detect Alarm in Channel Parameters




**Sensitivity:** Selects the motion sensitivity to be used for the channel.

- **Close** - Motion Detection Disabled
- **1** – Lowest Sensitivity
- **5** – Highest Sensitivity

**Trigger Record Channel:** Upon motion detection, the corresponding channel will begin recording. Recording time based off of PostRec Time in Channel Parameters

**Motion Alarm Handle Method**: Upon motion detection, the DVR will respond based on the options chosen.

**Schedule:** Set the schedule when this channel will use motion detection

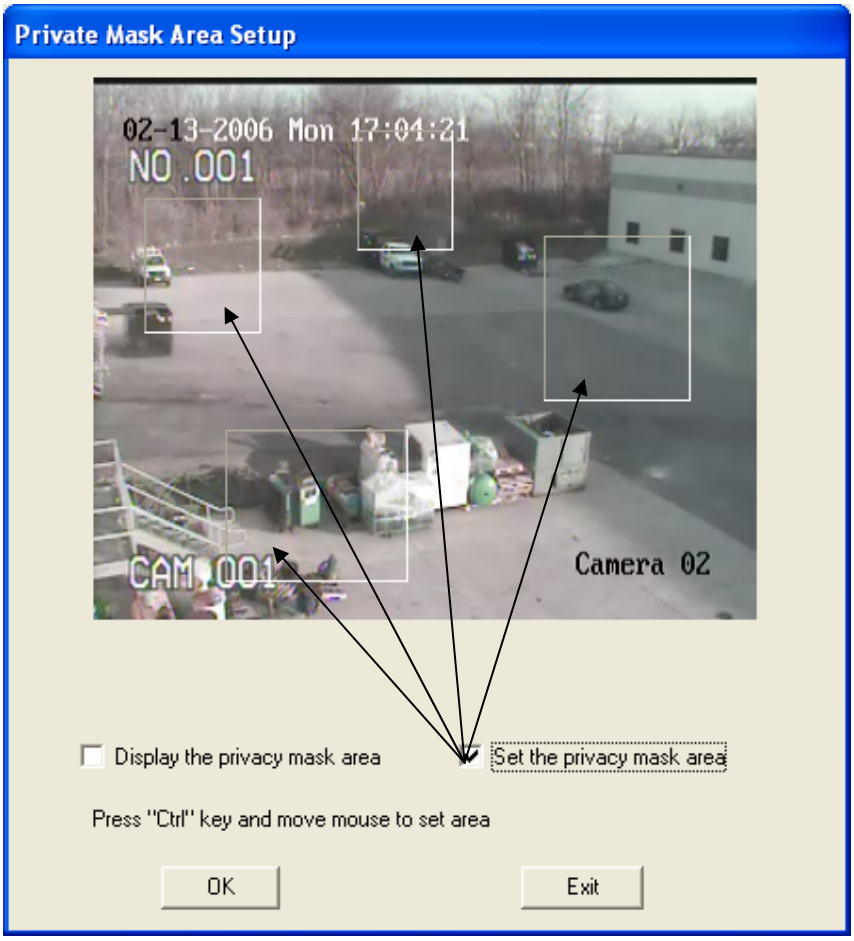
---

**NOTE**: The *Upload to Center* option will enable the DVR to send alarm information and screenshots to the client software. The client software must be configured to receive alarm information (see the Client Alarm Receipt section to enable)

---

**2-d. Set Privacy Mask**

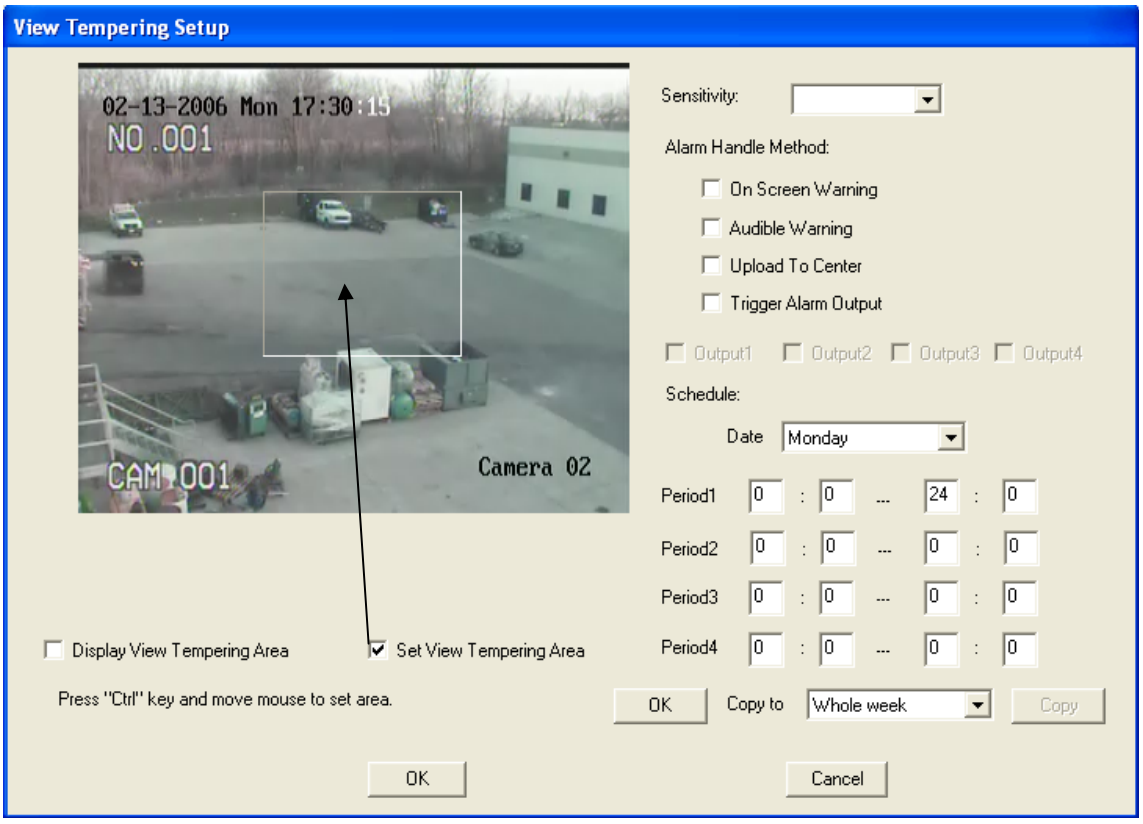
-Press the Setup Button next to Private Mask in Channel Parameters. This feature hides areas of the picture from preview and does not record these masked areas.




**NOTE**: Up to 4 masks may be set to hide from preview and recordings

### 2-e. Set View Tampering Alarm

-Press the Setup Button next to View Tampering Alarm in Channel Parameters. This feature will trigger an alarm when the camera is intentionally blocked.




**Sensitivity:** Selects the sensitivity to be used for the channel.

**Motion Alarm Handle Method**: Upon triggering, the DVR will respond based on the options chosen.

**Schedule:** Set the schedule when this channel will use View Tampering

---

**NOTE**: The *Upload to Center* option will enable the DVR to send alarm information and screenshots to the client software. The client software must be configured to receive alarm information (see the Client Alarm Receipt section to enable)

---

**2-f. Video Loss Alarm**

-Press the Setup Button next to Video Lost Alarm in Channel Parameters. Upon loss of the camera's video signal, the DVR will respond based on the options chosen.

**Video Loss Handle**: Upon loss of video, the DVR will respond based on the options chosen.

**Schedule:** Set the schedule when this channel will use Video Loss Alarms

---

**NOTE**: The *Upload to Center* option will enable the DVR to send alarm information and screenshots to the client software. The client software must be configured to receive alarm information (see the Client Alarm Receipt section to enable)

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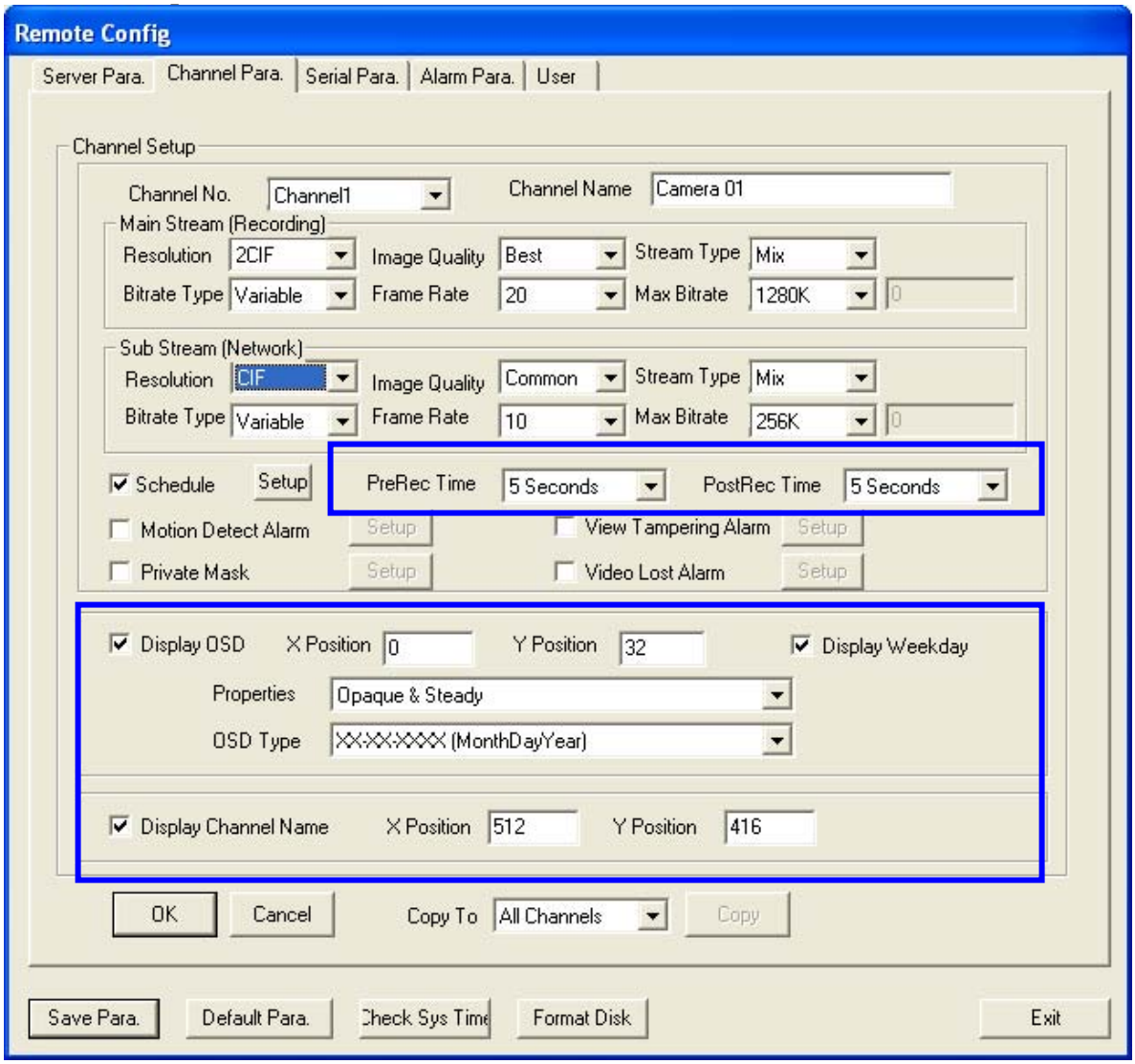
## 2-g. Set OSD Options and Pre/Post Recordings

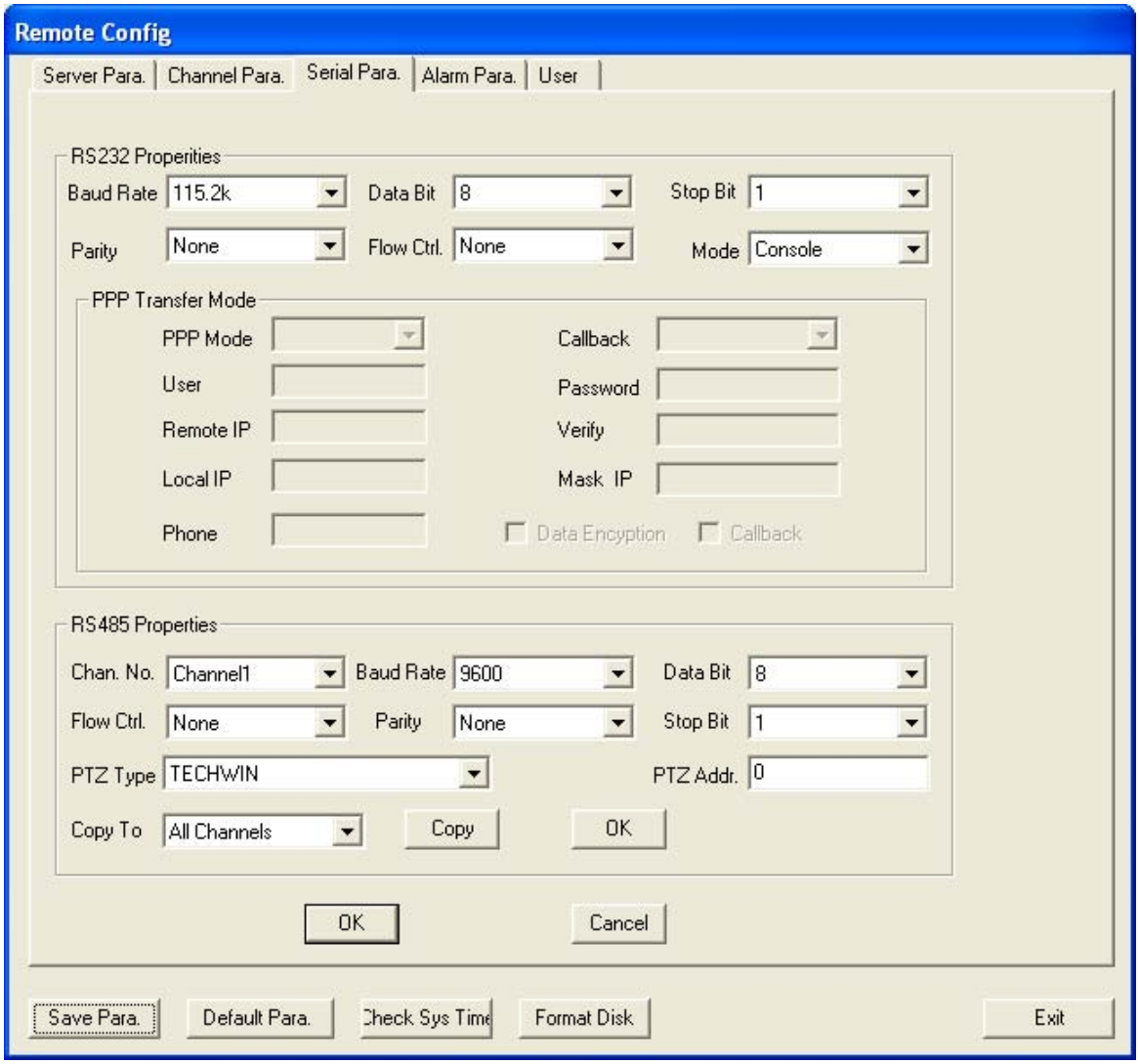



**Pre/Post Record:** If alarms (motion, view tampering, etc.)trigger recording, the time set will specify how long before and after that event took place to save the recordings.

**OSD:** Specify various On Screen Display properties per channel

### 3. Serial Parameters

-This section allows users to modify serial parameters for RS-232, dialup, and RS-485 devices attach to the DVR




**RS-232 Properties**: Set the parameters for the RS-232 connection.

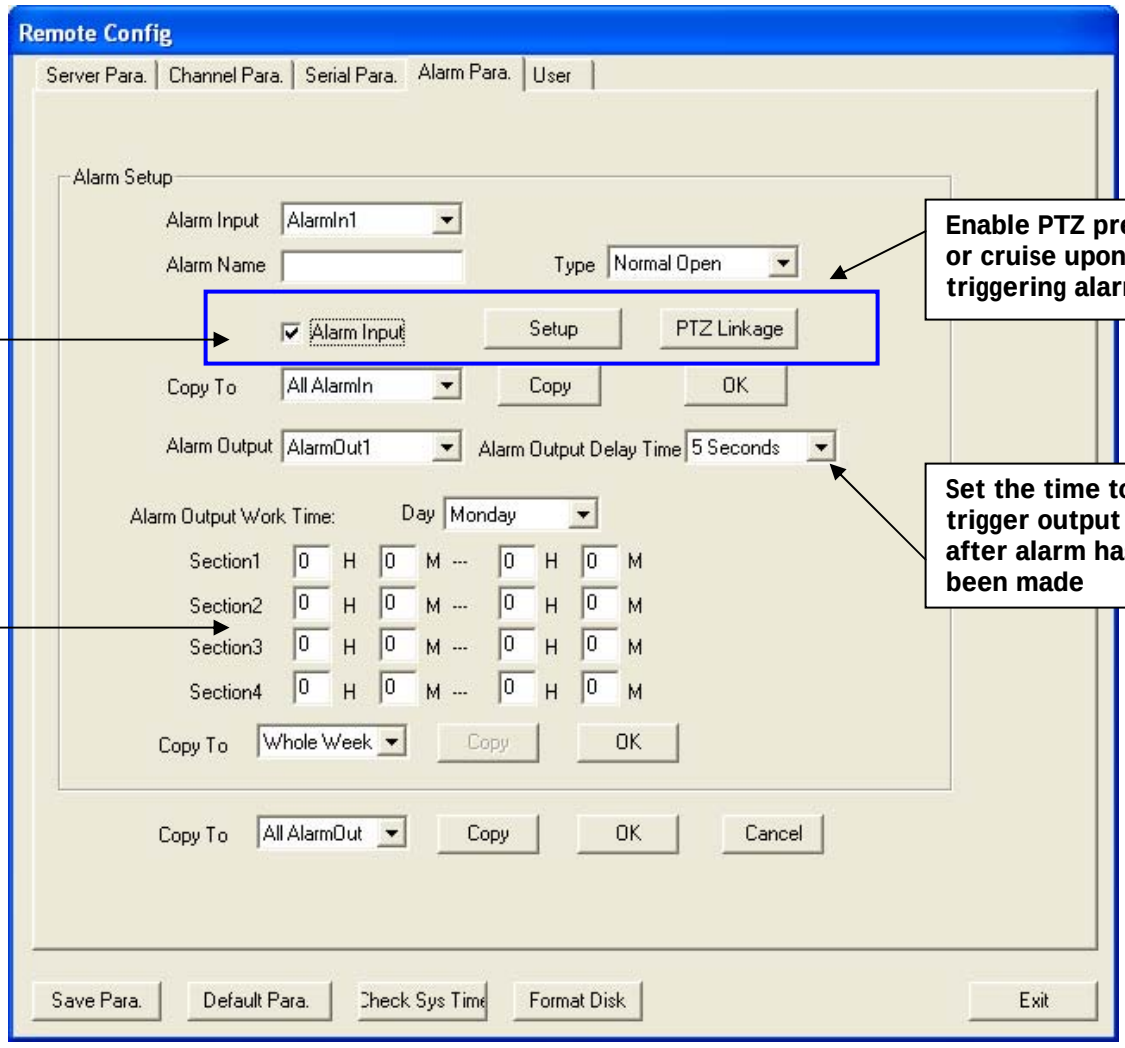
- Console Mode – For RS-232 keyboard controller or HyperTerminal
- PPP Mode – For RS-232 dial-up modem
- Transparent – For all other RS-232 devices

**PPP Transfer Mode**: Configure dial-up modem properties. Please contact your ISP for details.

**RS485 Properties**: Set the parameters for Pan/Tilt/Zoom cameras

## 4. Alarm Parameters

-This section allows users to modify the alarm inputs and relay outputs

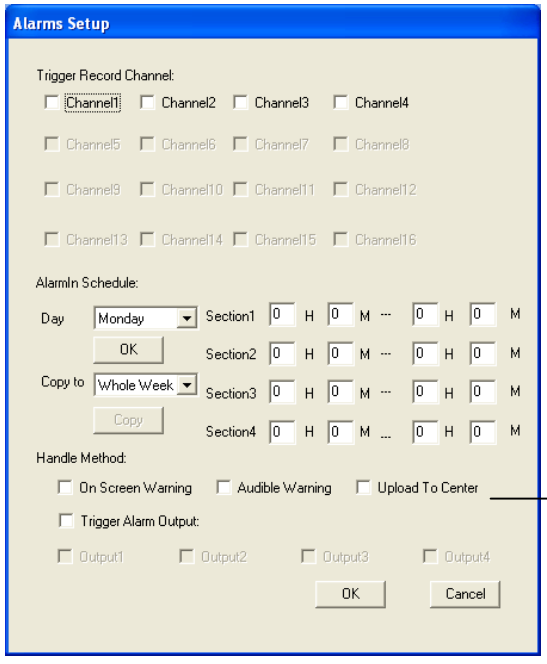


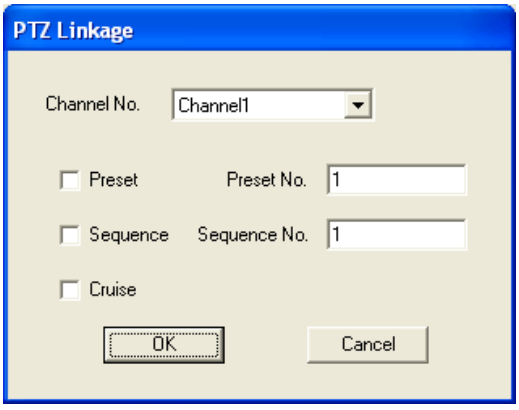

**Set alarm input schedule and parameters**

**Set relay output schedule and parameters**

**Enable PTZ presets or cruise upon triggering alarms**

**Set the time to trigger output relay after alarm has been made**

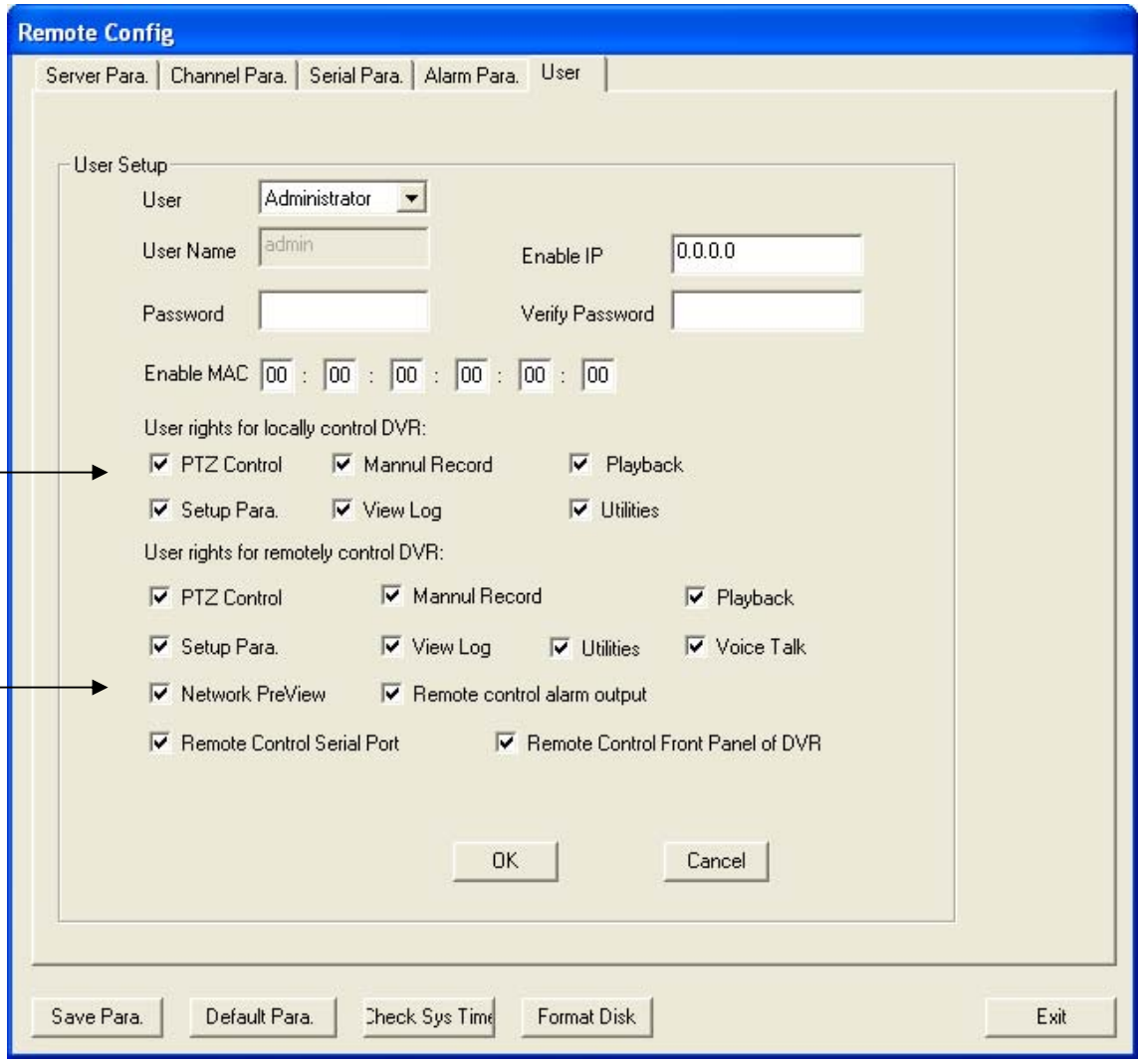



**NOTE**: The *Upload to Center* option will enable the DVR to send alarm information and screenshots to the client software. The client software must be configured to receive alarm information (see the Client Alarm Receipt section to enable)

## 5. DVR User Parameters

-This section allows for user maintenance on the local DVR and embedded web server.




**User rights for local DVR access**

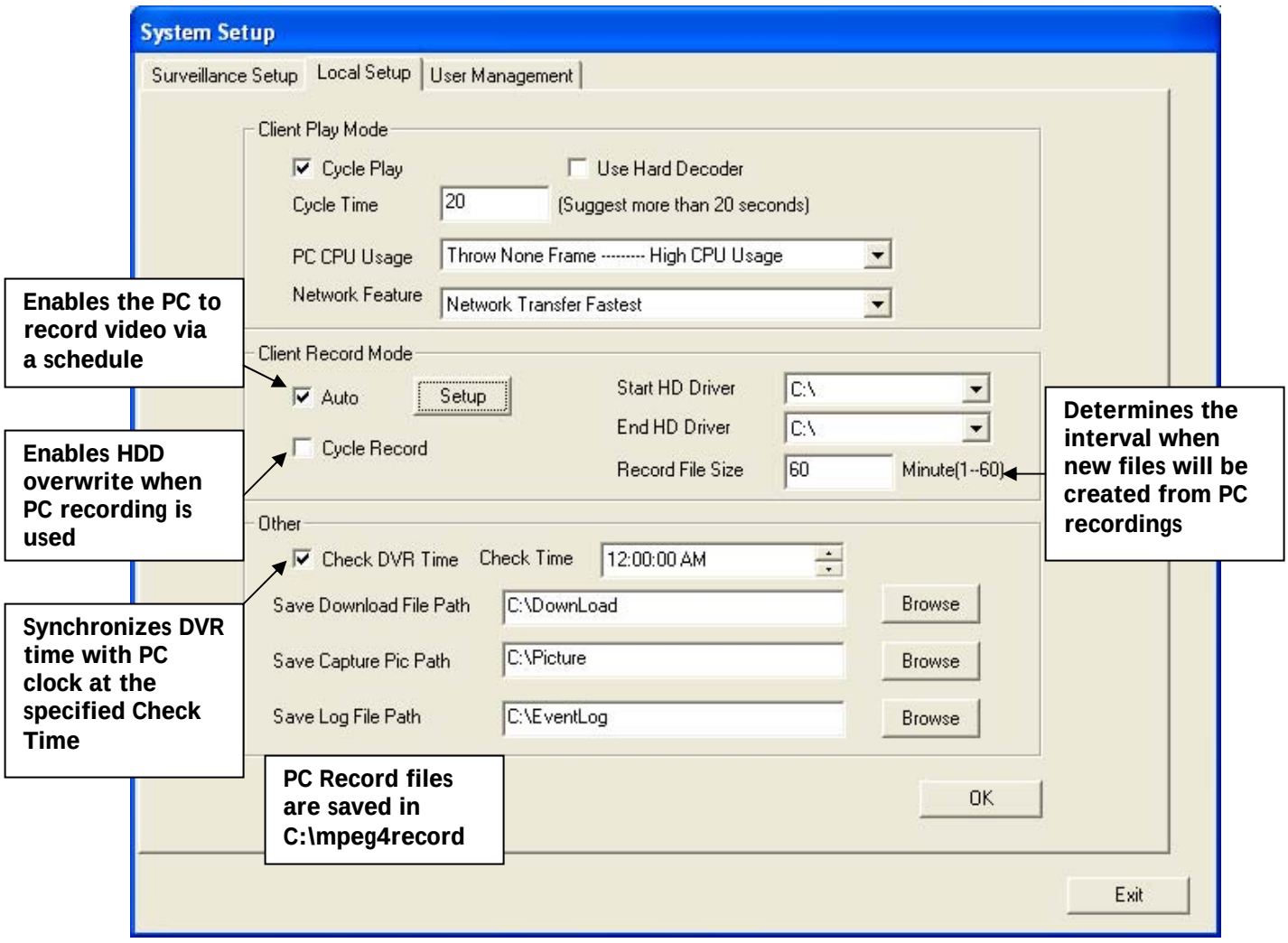
**User rights for client software and embedded web server**

**Enable IP**: Apply IP filter and only allow that IP to connect with the specified user credentials

**Enable MAC**: Apply MAC filter and only allow that MAC to connect with the specified user credentials

## Local PC Setup

-Click the Local Setup Tab to configure local PC settings




**Cycle Play**: Enables live preview sequencing

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**NOTE**: To setup sequencing, please refer to page 12

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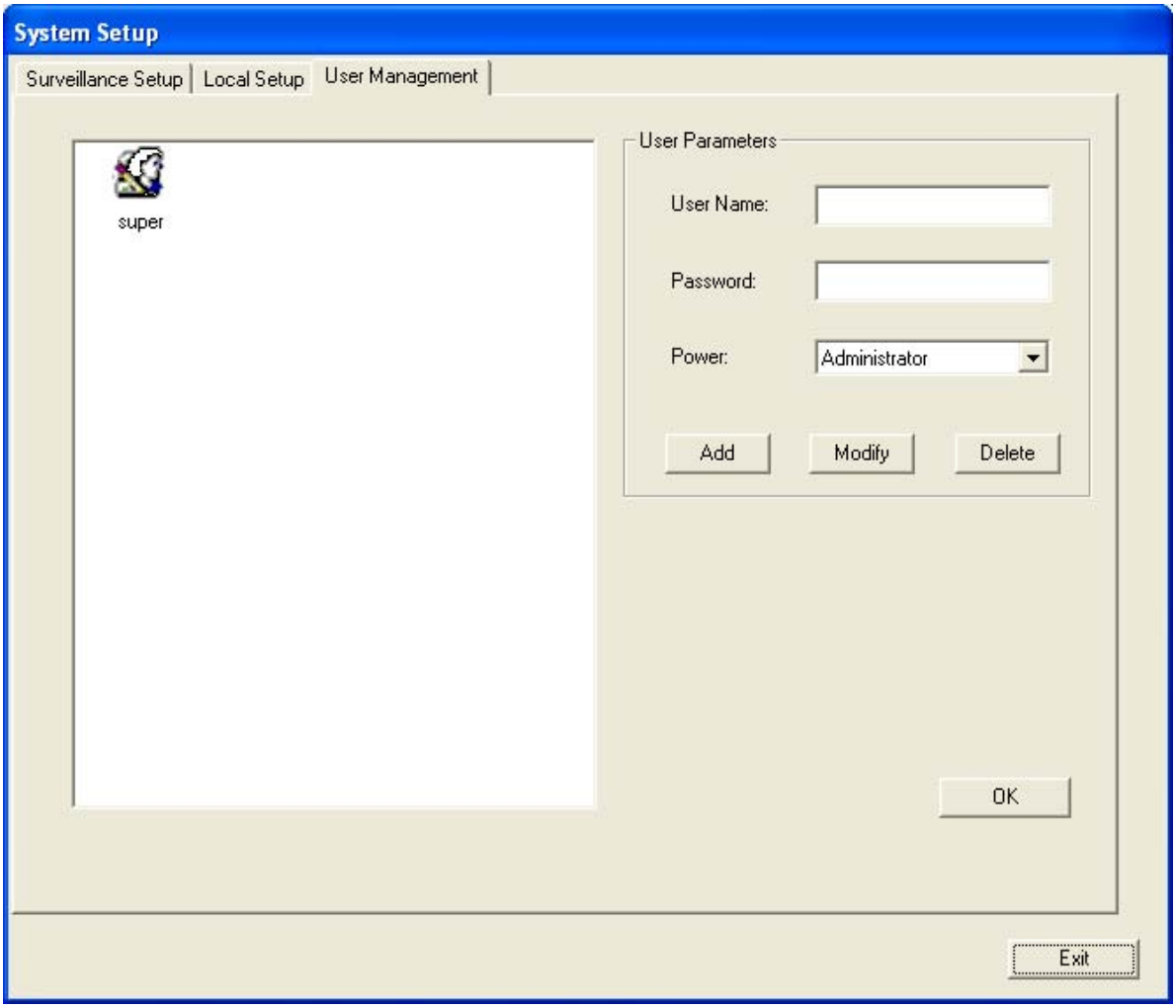
**Use Hard Decoder**: If the optional hardware decoder card is installed in your PC, the client software will use the decoder card to preview live images and output an analog video signal for external display (TV, projector, etc.)

**PC CPU Usage**: By default, the client software will use the PC CPU to uncompress the video image. If you want to decrease the PC CPU usage, you can select to throw the B frame when the image is being decoded.

## User Management

-Click the User Management Tab to configure client software users

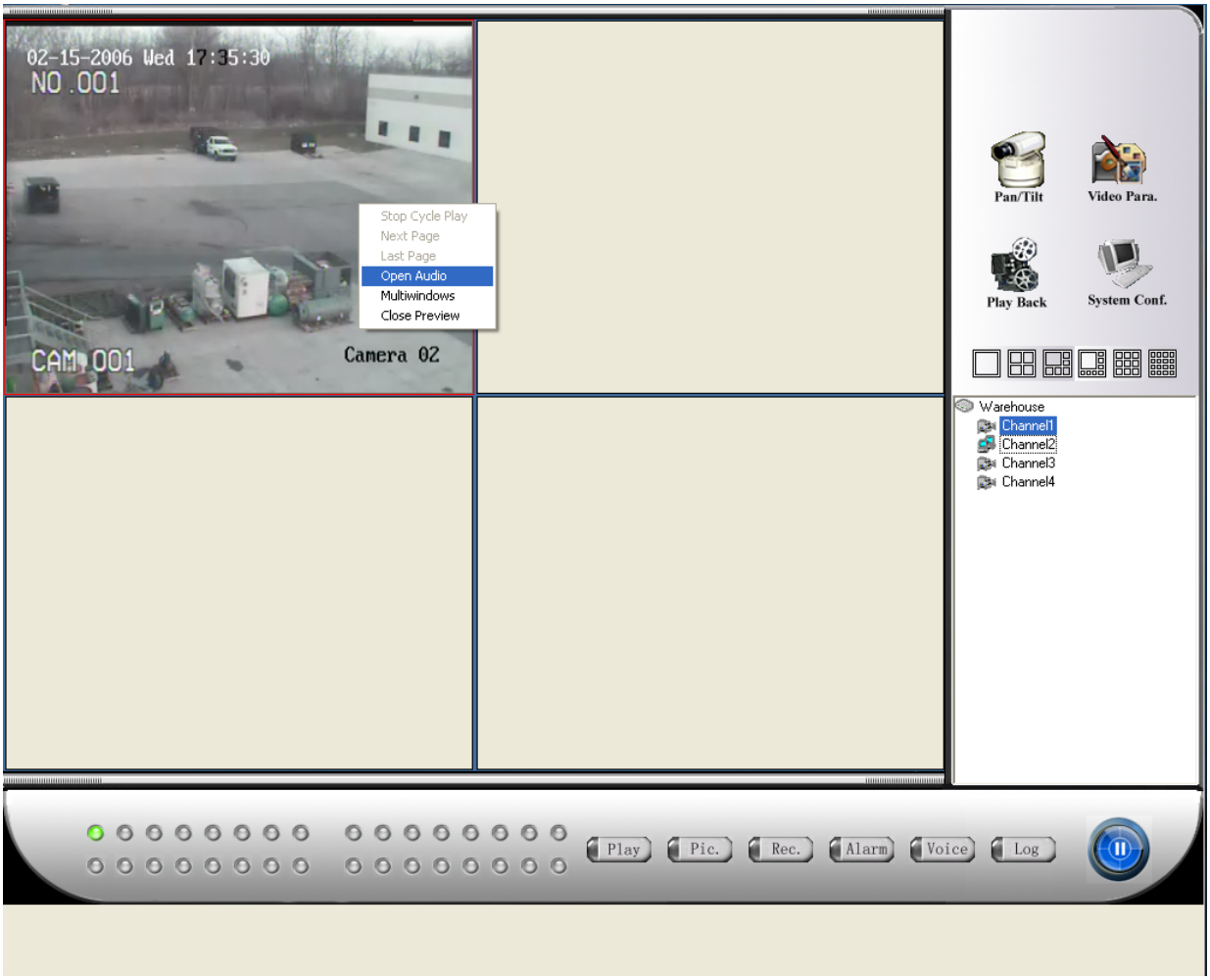



**Power**

- Administrator – Full control
- Super Operator – Local control, playback, and PTZ only. No control over DVR or system configuration (System Config, Video Para., Alarm, and Log disabled)
- Operator – Local control only. Allows only for PC record, image capture, Voice, and live preview

## Audio Preview

-To enable audio via the client software, right-click the image and choose Open Audio. To disable, right-click and choose Close Audio



## Multi-Window Preview

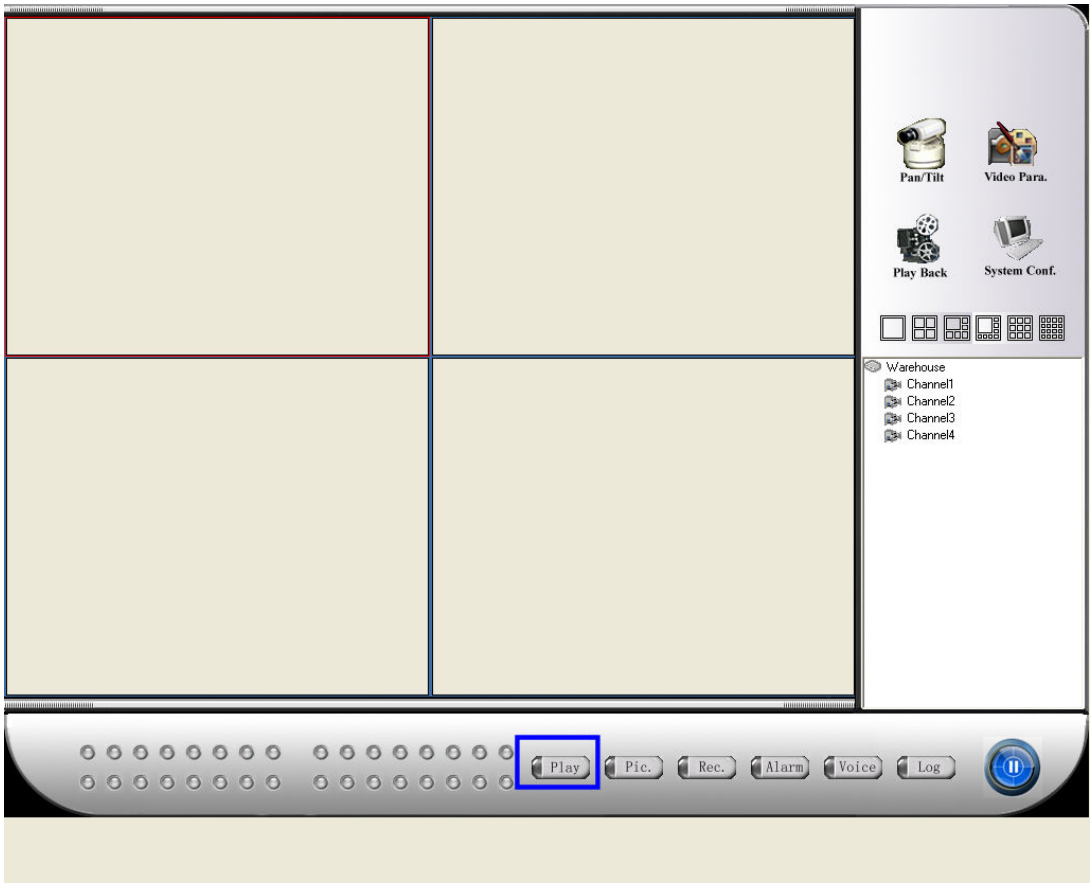
-The Multi-Window feature enables the video to maximize full screen. This feature functions for all screen division options. Right-click an image and choose Multiwindows. To disable, double-click an image.

## Sequence Preview

-You can sequence the live video channels from single or multiple DVRs from any screen division option. Follow the below steps to utilize this feature.

- Enable this feature (Cycle Play) in Local Setup (see page 30)
- Setup the channels you wish to sequence (see page 12)
- Click the button twice to start the sequence.





## IMAGE CAPTURE

-Images can be taken at any time. Simply select the camera on screen and click the

icon.

**NOTE**: By default, images are saved to the C:\Picture folder. See page 30 for folder settings

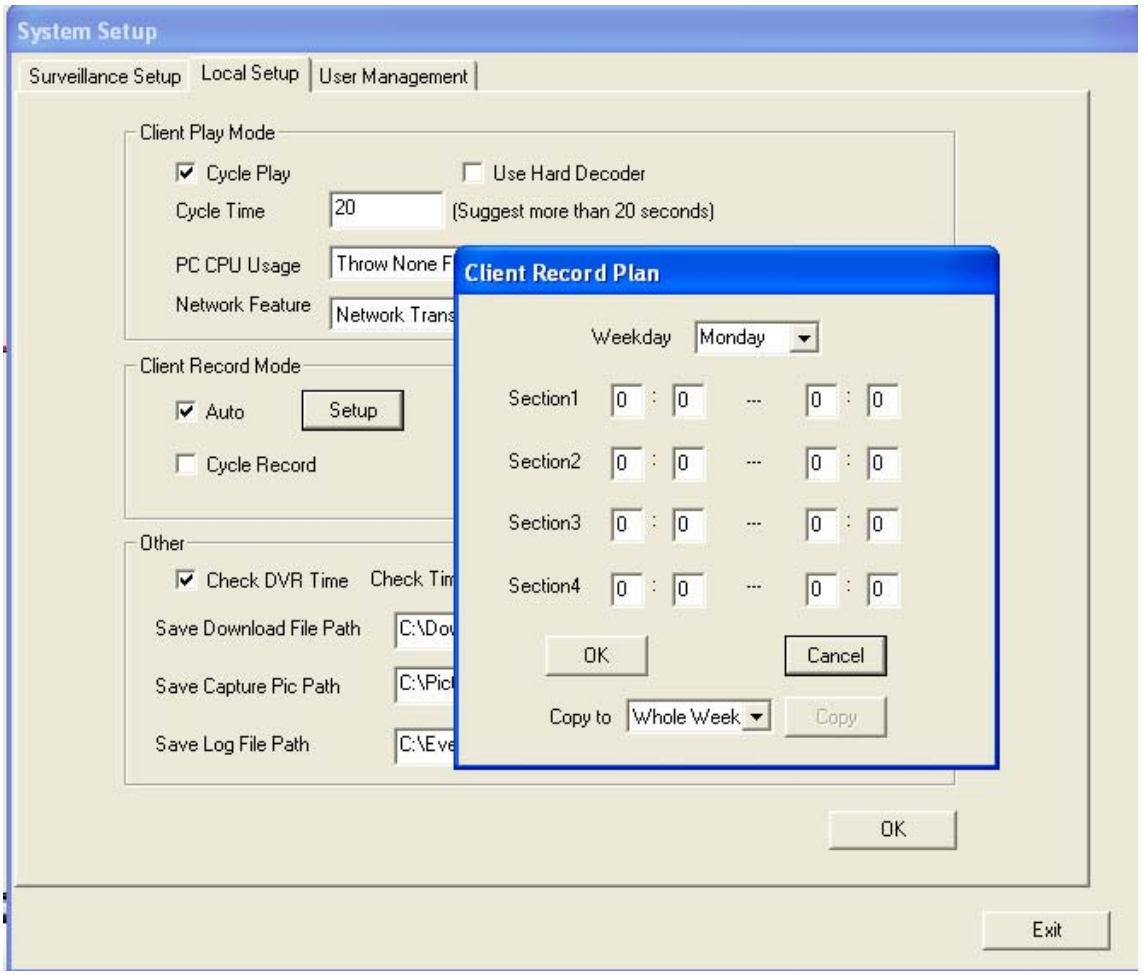
**NOTE**: Images will be saved according to the Resolution setting of that particular channel. Please use the sub-stream option when viewing video and all captures will be in CIF (352x240) or QCIF (176x120)

| | |
|---|---|
| 2CIF Capture (704x240) | |
| CIF Capture (352x240) | |
| QCIF Capture (176x120) | |

## Schedule Record

-To enable automatic PC recording based from a schedule, follow the below steps. See page 30 for more details.

- Enter Local Setup
- Check the Auto checkbox
- Click the Setup Icon to set a schedule

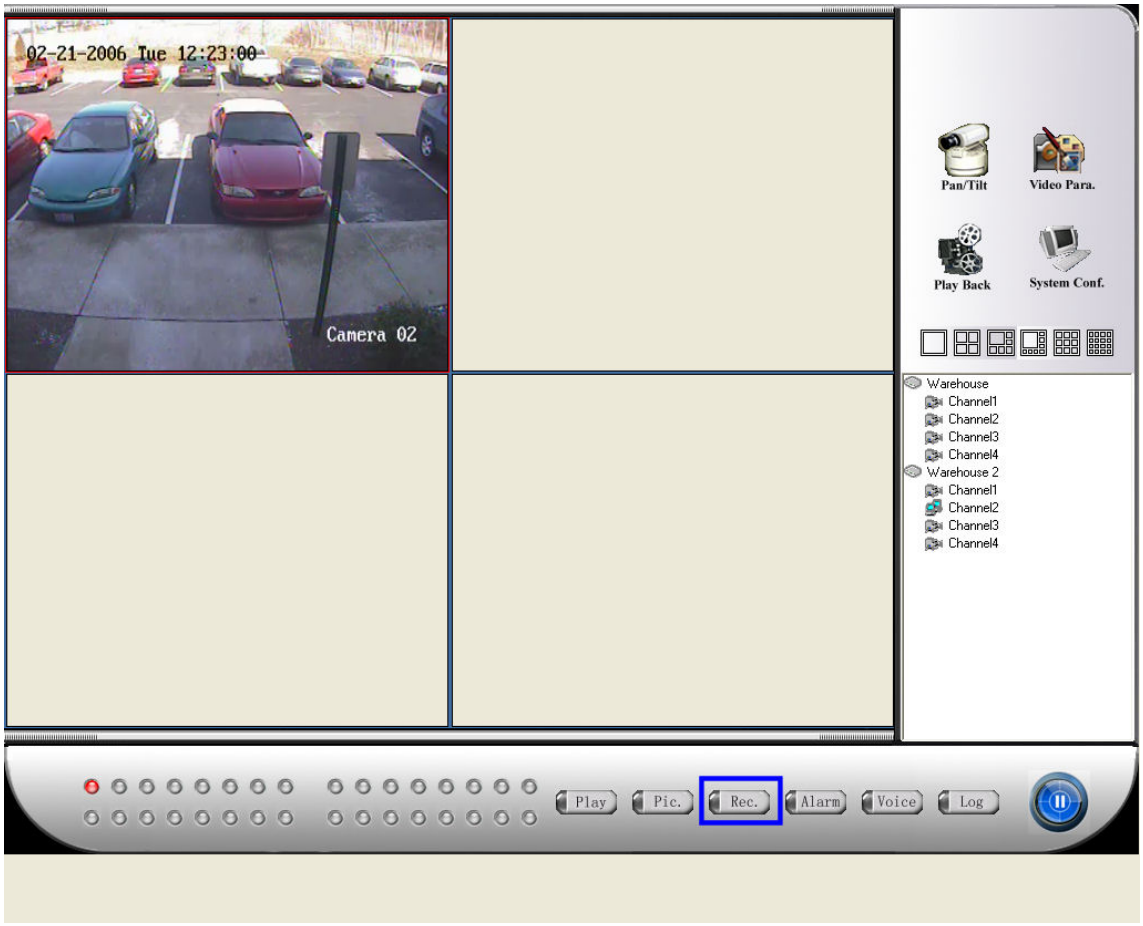



**NOTE**: By default, video is saved to the C:\mpeg4record folder

## Manual Record

-To enable manual PC recording, follow the below steps. See page 8 for more details.

- Access the main interface
- Press the Rec. button to start recording
- Press again to stop recording

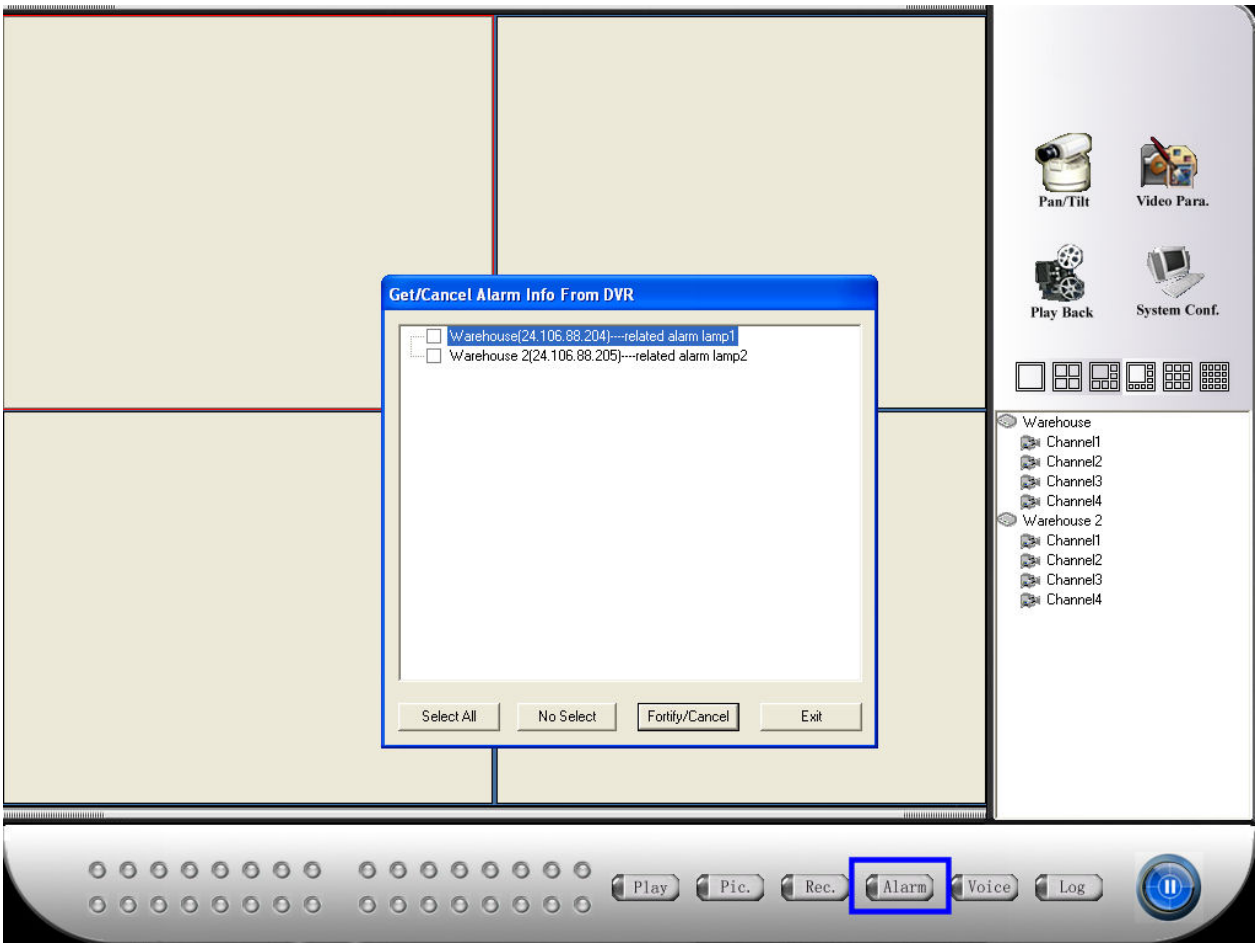



**NOTE**: By default, video is saved to the C:\mpeg4record folder

## CLIENT ALARM RECEIPT

-The client software can receive event messages from the DVR and notify the user via a pop-up window when events have been received. To enable the client software to receive alarm messages from the DVR follow the below steps. This setup is required for options set to “Upload to Center”. See pages 8 and 22 for more information associated with this feature.

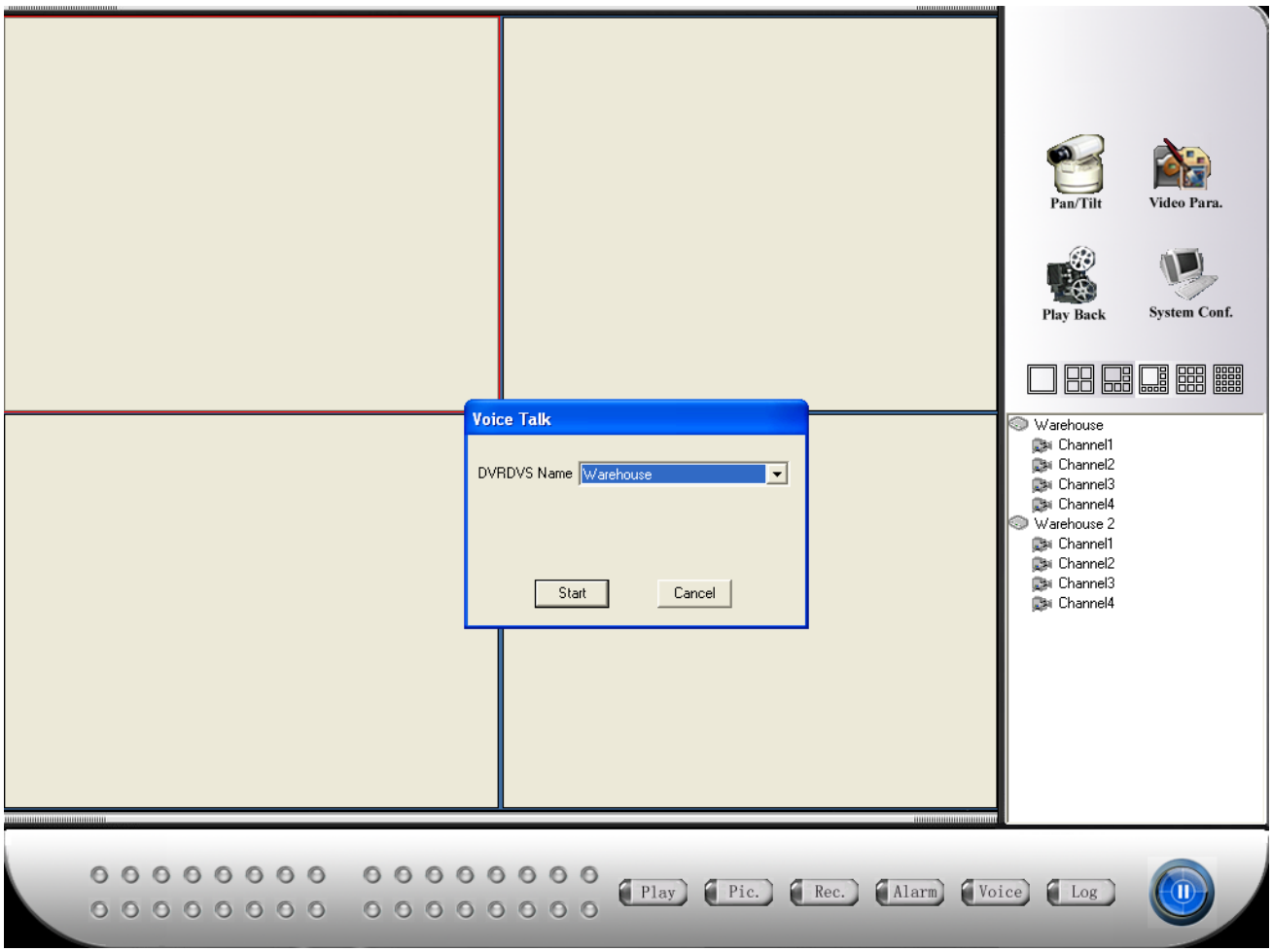
- Access the main interface
- Press the Alarm button
- Select the DVR(s) you wish to enable
- Click Fortify/Cancel to enable/disabled selected DVRs



## VOICE TALK

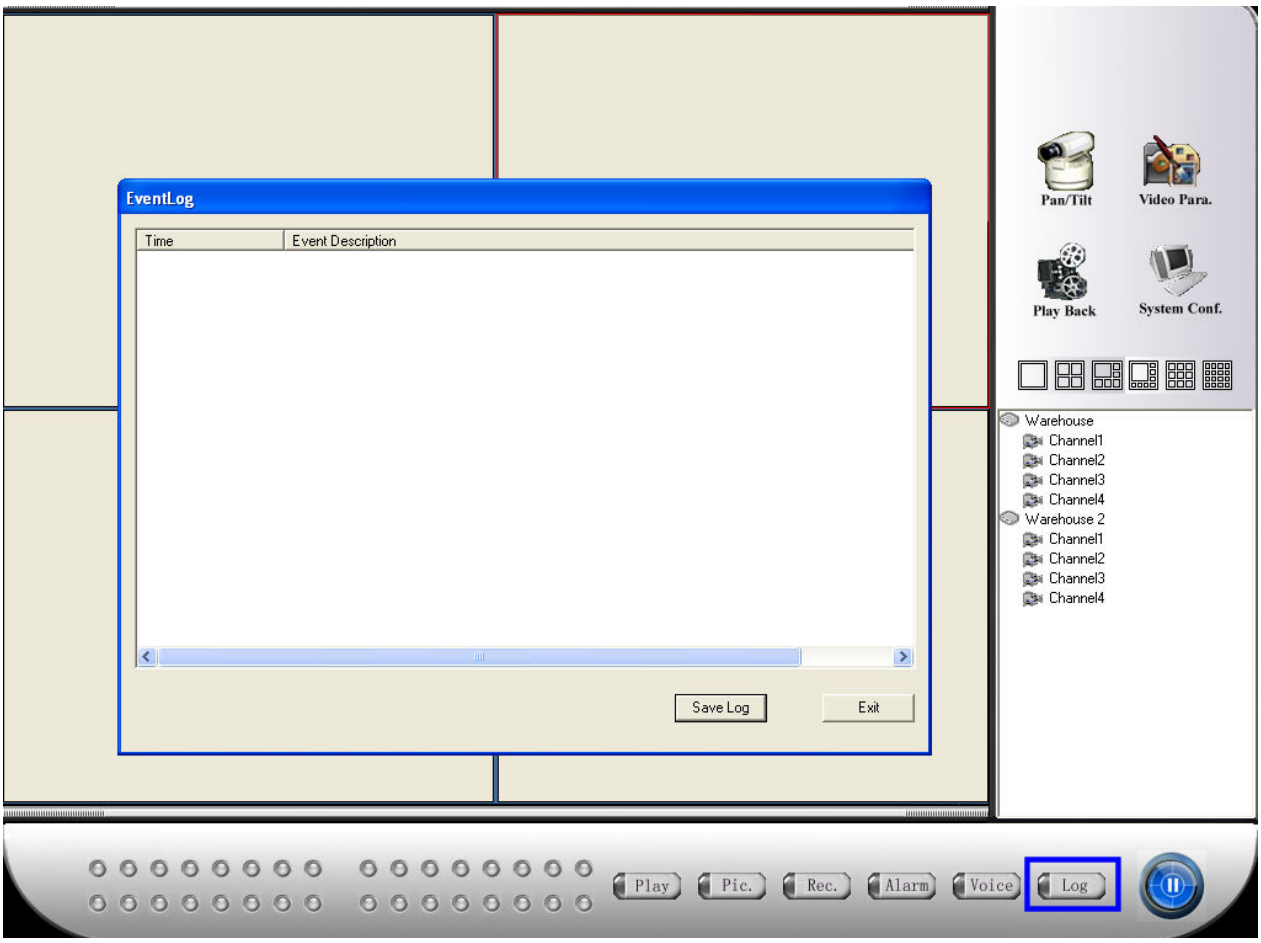
-The client software allows two-way audio between the PC and DVR. Simply select the

button, select your DVR, and click Start. Click the voice button to stop.



-If client alarm receipt is enabled, you can view the messages received from the DVR by simply selecting the

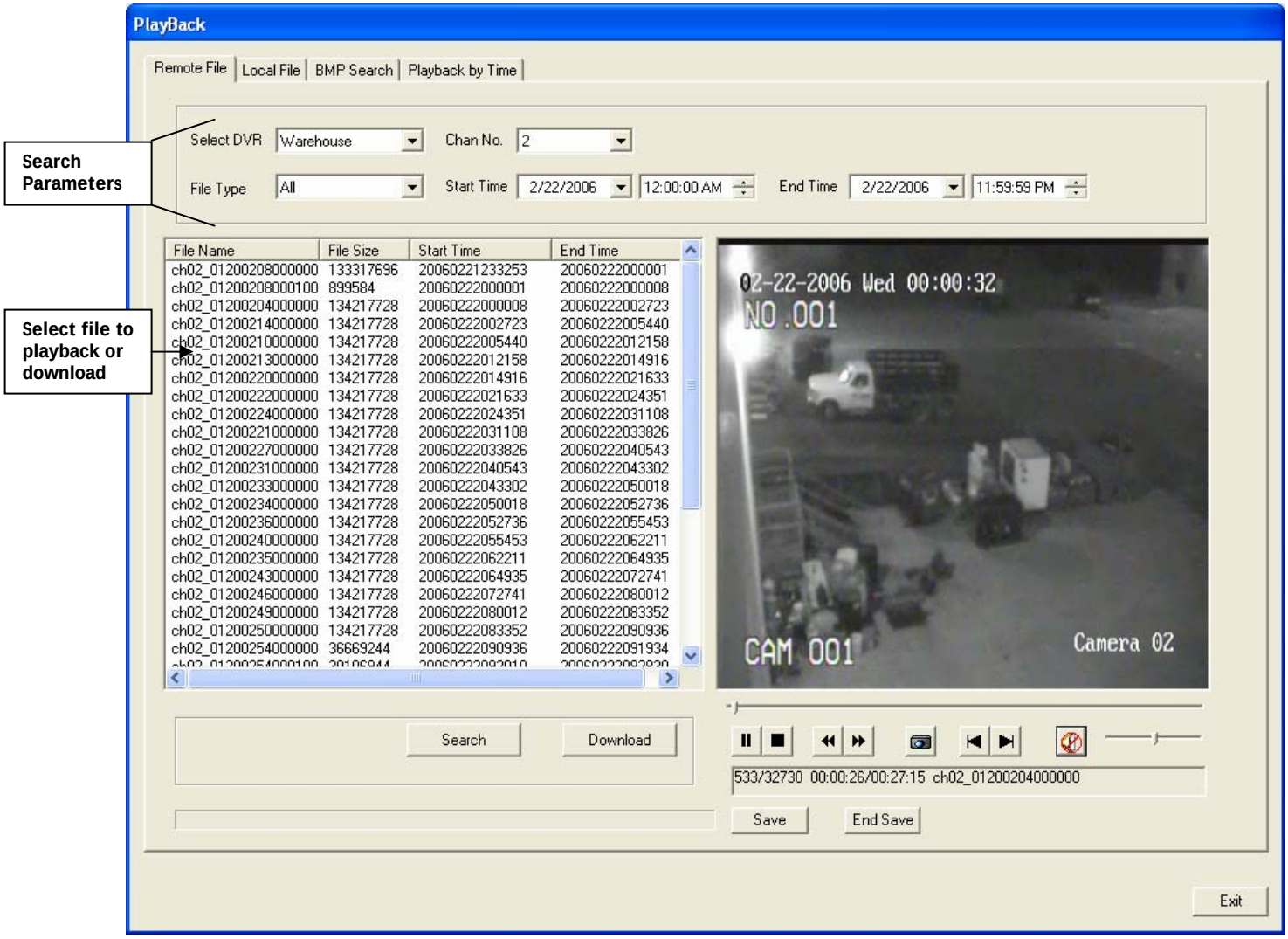
button.



## Remote File Playback

-To access the remote playback page click the Play Back icon, please see page 7.
-This section will allow remote playback of video, saving playback video, and downloading backups of video.

**NOTE**: All video downloaded and reviewed from this screen is native to the Recording Resolution and does not use Sub-Stream. It is recommended to use the playback feature on the local network, T1, or higher broadband connection to accommodate the large 2CIF streaming video or download the video prior and view the video in the file player.



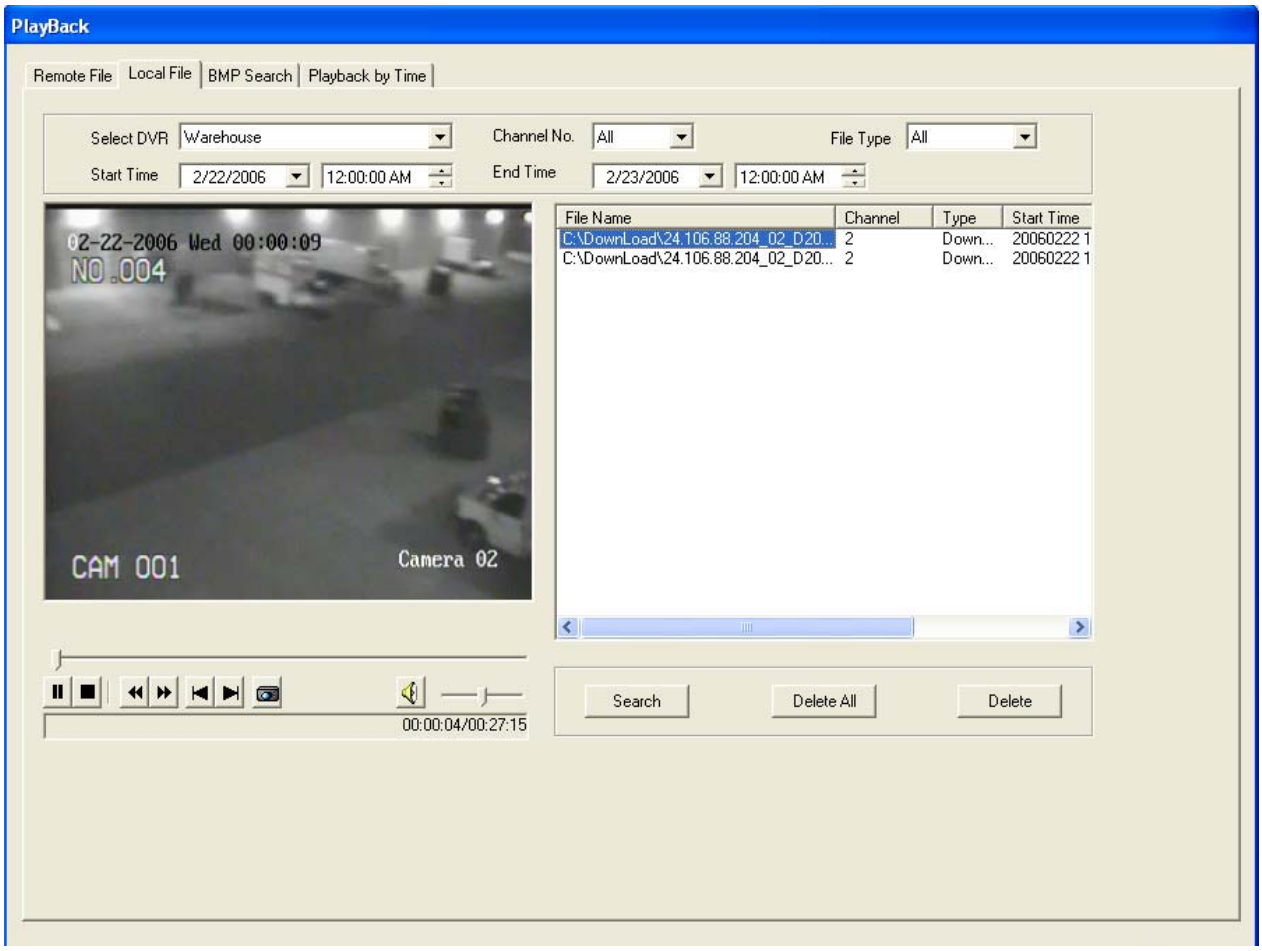

**NOTE**: For downloading, multiple files can be selected by holding down the CTRL key. Ranges can be selected by holding down the SHIFT key.

**File Size**: Size of file in bytes

**Start/End Time**: Year_Month_Day_Hour_Minute_Second

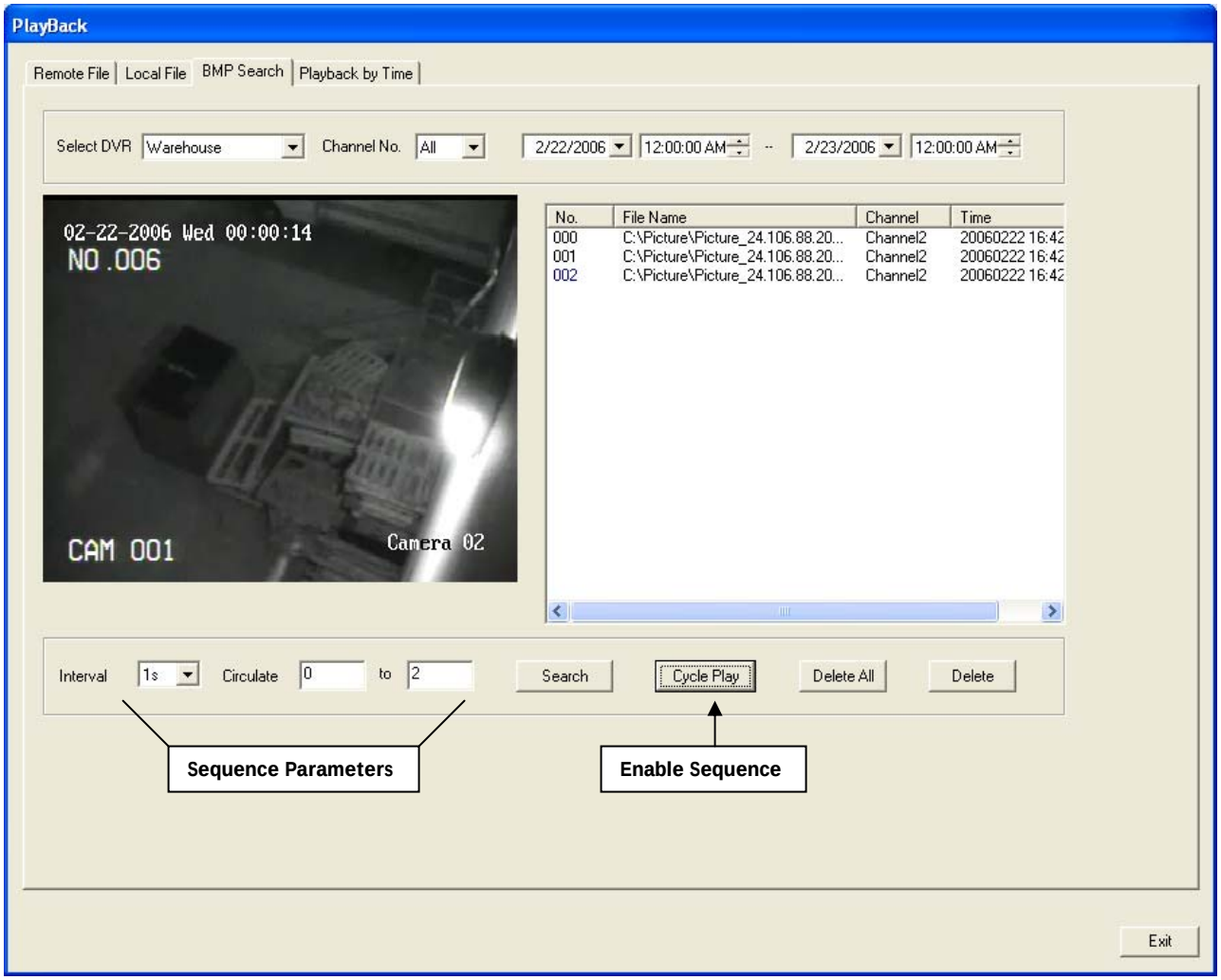
## Local File Playback

-To access the local playback page click the Play Back icon, please see page 7.
-This section will allow playback of downloaded files. See page 41 to download video.



## BMP Search

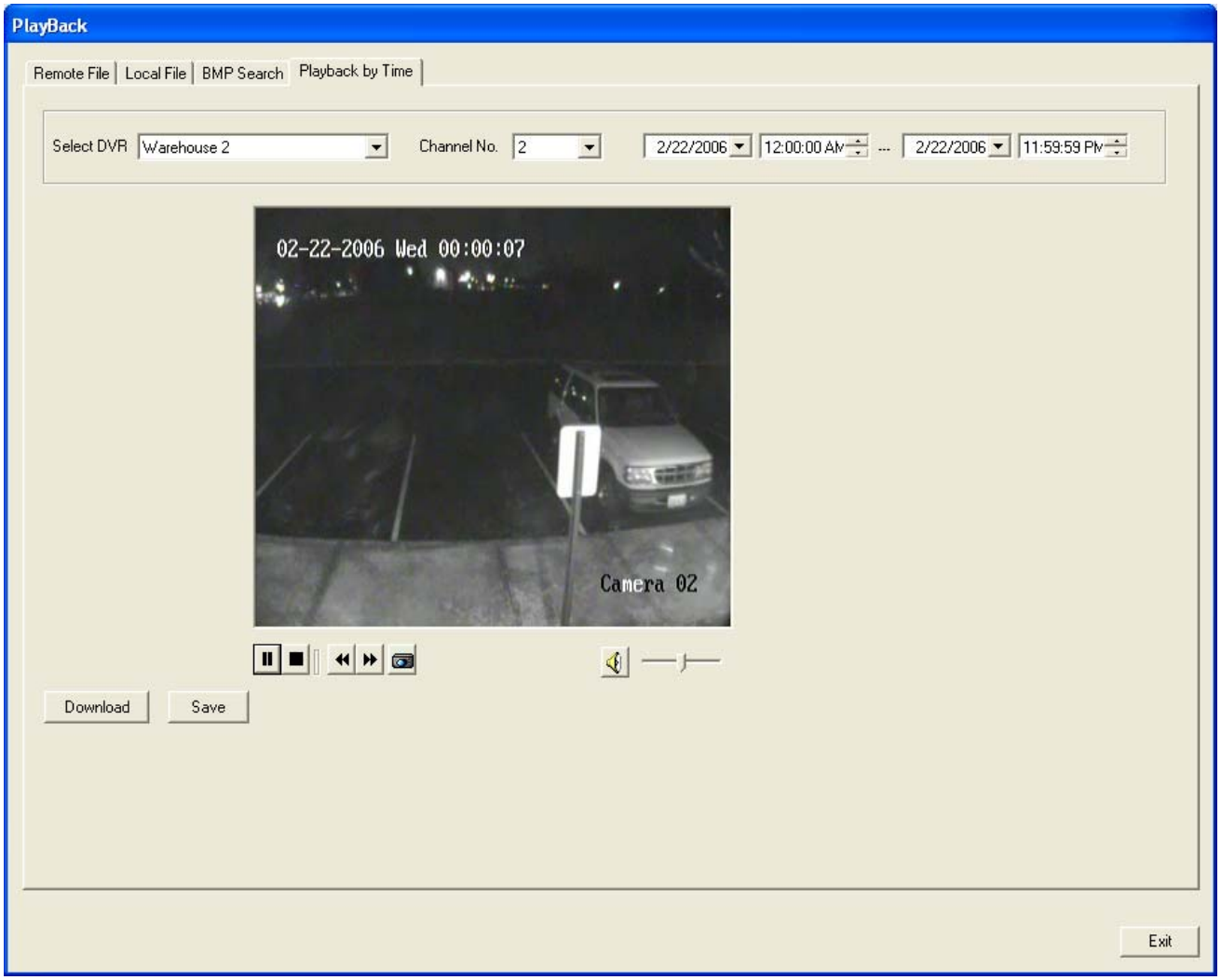
-To access the BMP Search page click the Play Back icon, please see page 7.
-This section will allow viewing of saved BMP images



## Remote Playback by Time

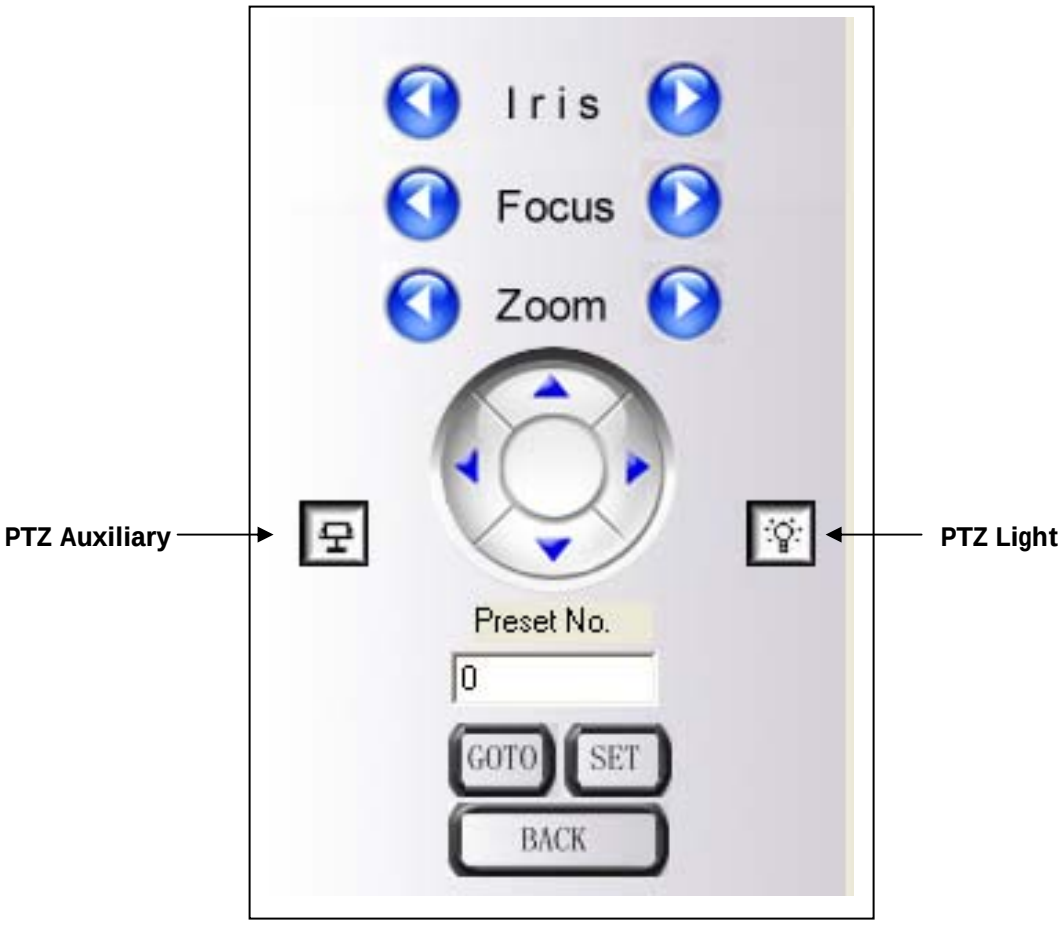
-To access the remote playback page click the Play Back icon, please see page 7.
-This section will allow remote playback of video, saving playback video, and downloading backups of video by time.

**NOTE**: All video downloaded and reviewed from this screen is native to the Recording Resolution and does not use Sub-Stream. It is recommended to use the playback feature on the local network, T1, or higher broadband connection to accommodate the large 2CIF streaming video or download the video prior and view the video in the file player.



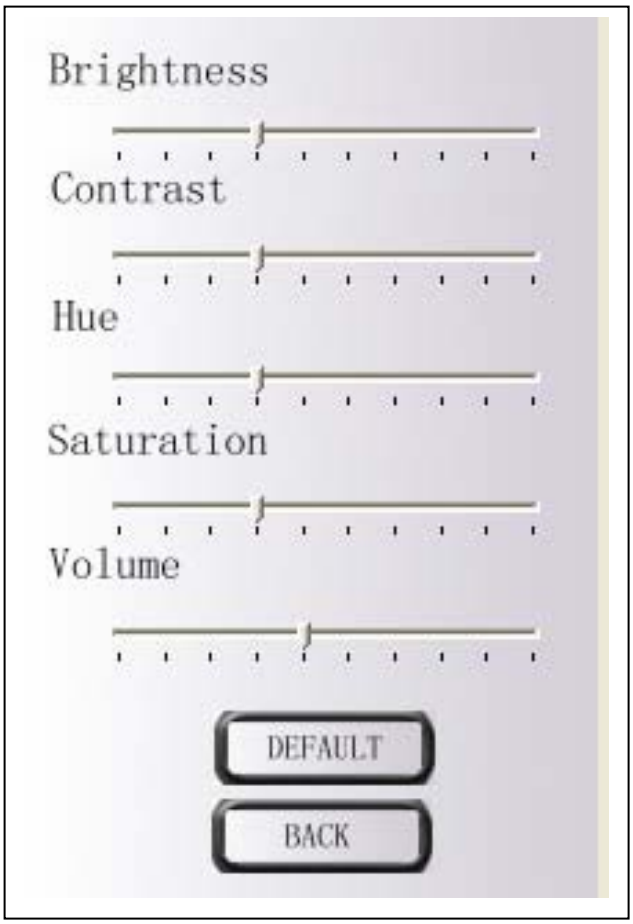
-To enable remote PTZ control, press the Pan/Tilt icon on the main interface. Ensure the screen resolution is set to 1024 x 768.

-Select your camera by clicking on the image.



-Adjustments to the camera image can be made by pressing the Video Para. icon

-Changes made will apply to the DVR locally and client software view



GEN IV TECHNOLOGY

# H.264 Network Digital Video Recorder

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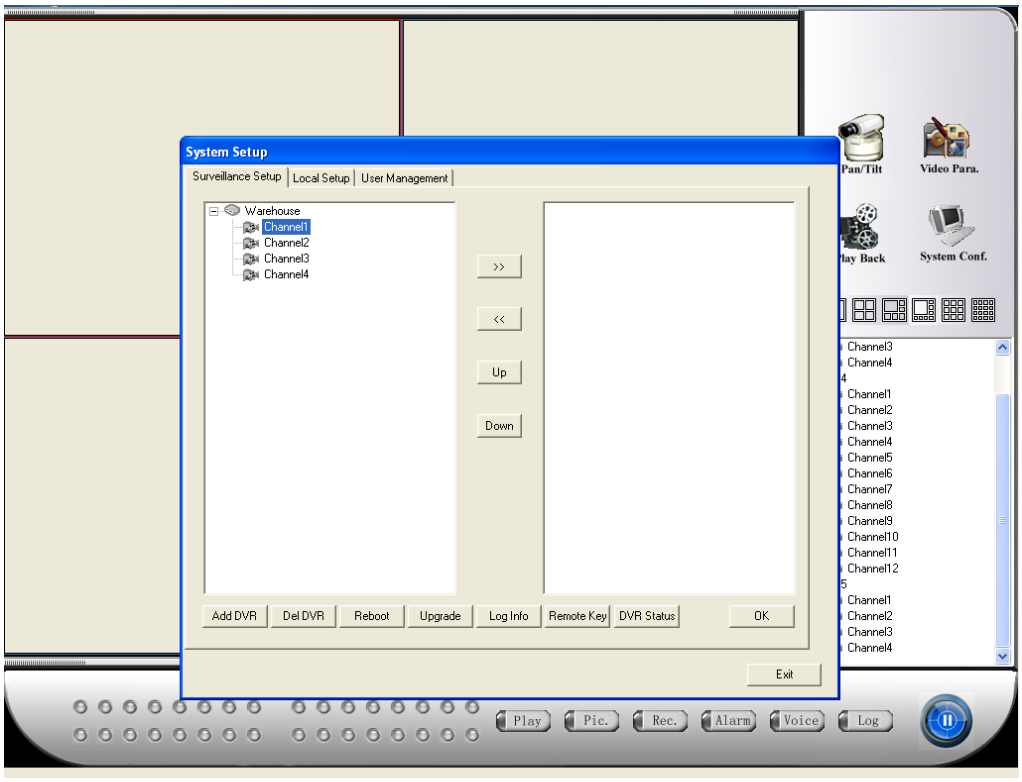
All DVRs utilizing firmware version 1.4 build 051215 and higher include a feature called "sub-streaming". This allows for high resolution recording to the unit locally (on the hard drive) and lower resolution for viewing across the Internet or LAN.

## YOU MUST USE THE SUB-STREAM FEATURE WHEN VIEWING IMAGES VIA THE CLIENT SOFTWARE OR WEB BROWSER

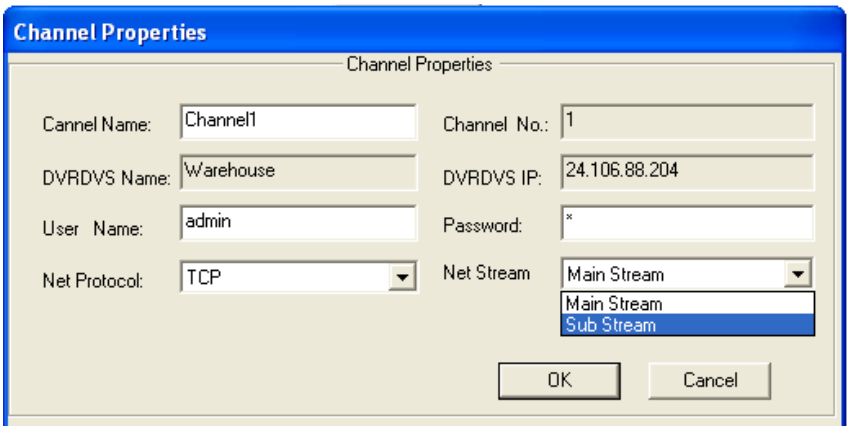
1. When viewing your DVR via the client software ensure the use of sub-streaming by following the below steps.

    a. Add your DVR to the client software

    b. Double-click Channel1 to open Channel Properties

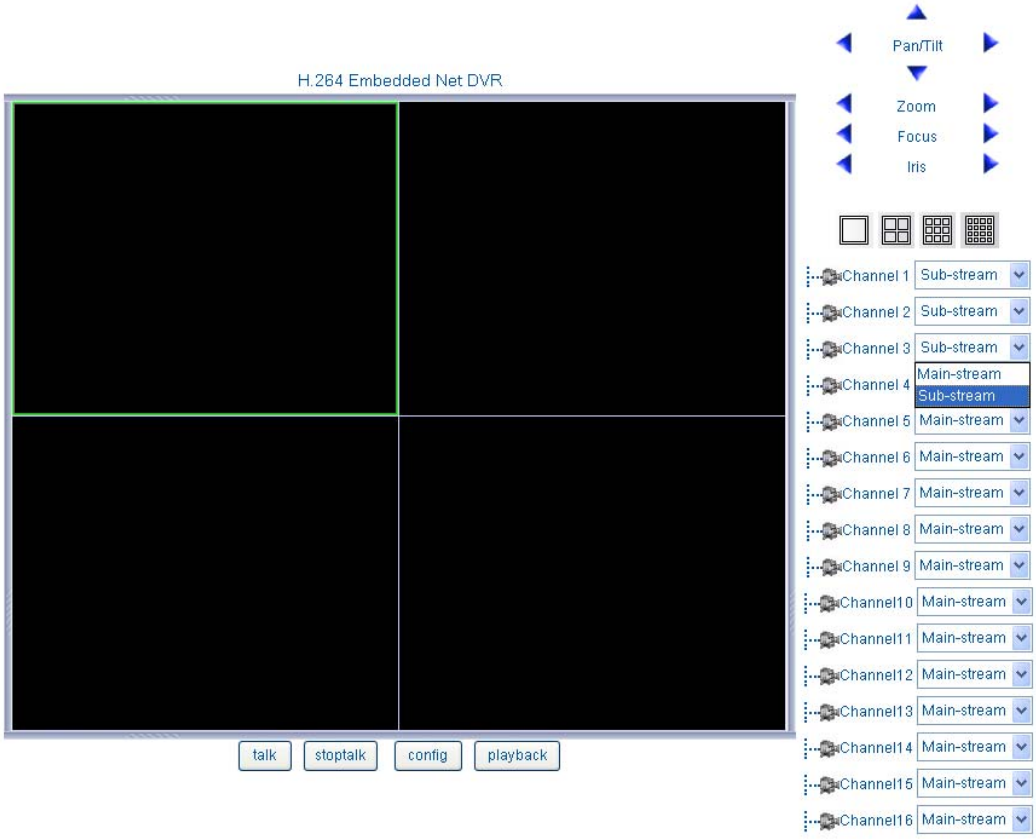



    c. Ensure the Net Stream option is set to Sub Stream, click OK, repeat for all channels



2. When viewing your DVR via Internet Explorer ensure the use of sub-streaming by following the below steps.

    a. Simply select Sub-Stream from drop down list next to each channel name prior to viewing that camera. Do this for every channel.

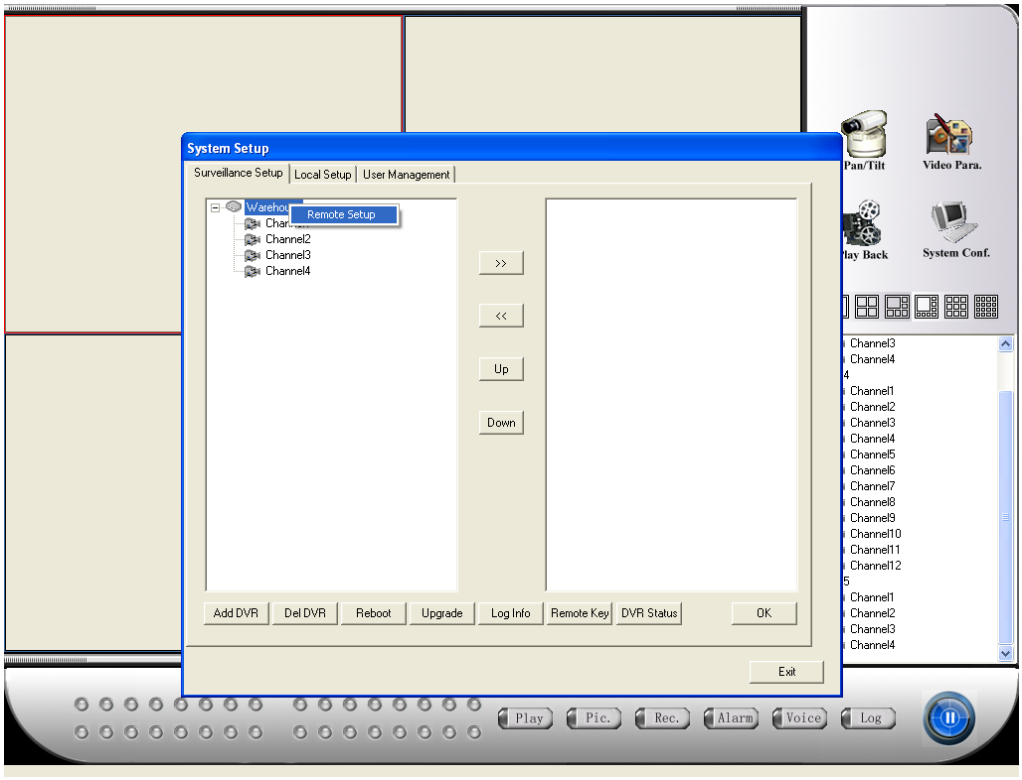


After enabling sub-streaming for viewing, you must configure the sub-stream parameters. These sub-stream parameters will differ from your recording parameters and will only be used when viewing the images remotely.

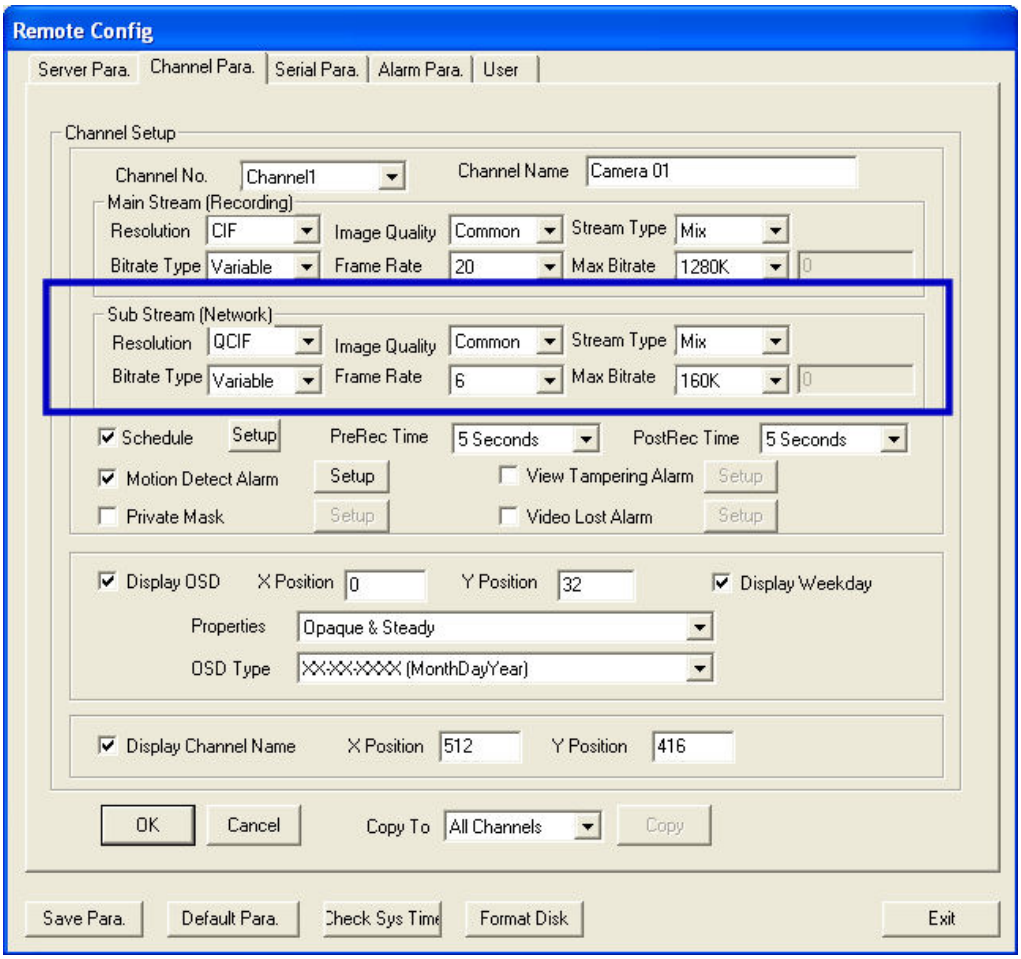
1. When viewing your DVR via the client software configure your sub-stream network parameters by following the below steps.

   a. Add your DVR to the client software

   b. Select your DVR name, right-click, select Remote Setup



c. Choose the Channel Para. Tab, edit the Sub Stream (Network) fields




d. After choosing your parameters for Channel 1, click OK, select Channel 2, edit parameters, click OK, and repeat for all channels. Finally, choose Save Para to apply all settings to the DVR.

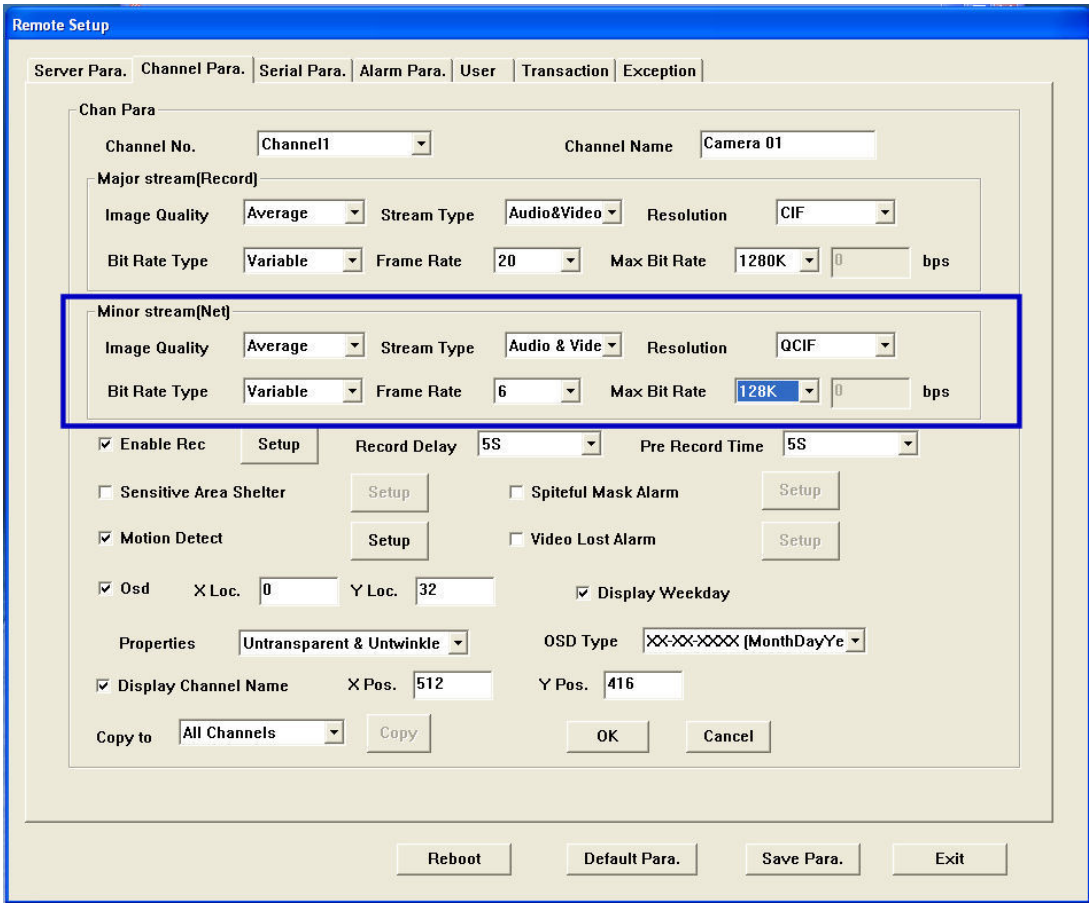
**NOTE**: Changes to Resolution or Stream Type require a reboot after Save Para.

**NOTE**: Review the optimization section for recommended settings

2. When viewing your DVR via the client software configure your sub-stream network parameters by following the below steps.

   a. Access your DVR and select the Config option

b. Choose the Channel Para. Tab, edit the Minor Stream (Net) fields




c. After choosing your parameters for Channel 1, click OK, select Channel 2, edit parameters, click OK, and repeat for all channels. Finally, choose Save Para to apply all settings to the DVR.

**NOTE**: Changes to Resolution or Stream Type require a reboot after Save Para.

**NOTE**: Review the optimization section for recommended settings

It is *critical* to set your sub-stream network parameters to an optimized state. In order for the user to enjoy the power of H.264, the sub-stream parameters must be appropriate for your Internet connection at the DVR installation site. Please follow the below hints to help optimize your system for the best possible remote viewing experience.

- KNOW YOUR UPLOAD RATE. Do an Internet speed test at the site of the DVR installation to confirm the upload rate from which you will base your DVR sub-stream configuration. You must be well aware of this upload rate as this is the limiting factor in your remote viewing experience. There are many Internet speed test sites, but www.dslreports.com/speedtest is popular. Run a speed test that will display the UPLOAD speed (download speed does not matter at the DVR installation site, UPLOAD is critical to remote viewing).
- There is no minimum upload rate required for remote viewing to work, but lower the upload rate, the slower your video will refresh. We recommend a connection with no less than 256 Kbps upload, but even a dial-up connection will allow remote viewing, albeit at a very slow refresh rate.
- The **Resolution** and **Max Bit Rate** settings are the most significant when trying to achieve the highest quality image. Refer to the recommendations below for various upload rates.
- **There is always a trade-off between speed and image quality. For most cases, the frame rate can be dropped to 1-6 FPS to accommodate slow connections and higher quality images can be achieved. With low speed upload rates for Internet connections, there is no way possible to have high quality at real-time frame rates, since the bottleneck is the upload Internet connection and never the DVR. For DVR performance, use a local connection for evaluation.**
- For low speed connections, it may be preferred to access 1 or 2 cameras simultaneously, rather than all cameras. In this case, you can set high quality and speed parameters if only 1 or 2 are access at the same time. In this case, the low upload bandwidth is being used for just one channel rather than trying to squeeze 4 video streams through that small connection, this allows for higher quality and speed settings if you're using 1 camera for that entire upload bandwidth.
- The chart on the next page can be used as a guideline and as a starting point. Increase parameters only if your upload rate can support it. Dial-up speed is 56 kbps for reference.

| Upload (kbps) | Configuration |
|---|---|
| | |
| 128 - 256 | |
| 257 - 384 | |
| 385 - 512 | |
| 513 - 1024 | |
| 1024 + | |

NOTE:

- QCIF resolution is best used for split screen view (4, 8, or 16 channel view)
  - Use QCIF for low speed connections if accessing all cameras simultaneously
- CIF resolution is best used for all views
  - Use CIF for higher speed connections or if accessing 1 or 2 cameras on low speed connections
- If a mosaic effect (smearing) is apparent during movement in picture, increase the Max Bit Rate
- Reducing frame rates allow for high image quality via the Max Bit Rate or Resolution setting
- Reducing Max Bit Rate or Resolution settings allow for higher frame rates
- Use a low bit rate if there is little motion in the picture.